

TEXAS WATER COMMISSION

Paul Hopkins, Chairman
John O. Houchins, Commissioner
B. J. Wynne, III, Commissioner



Allen Beinke, Executive Director

December 16, 1987

Bonnie
Pls. Copy for Lee
James K. Rourke, Jr., General Counsel
Michael E. Field, Chief Examiner
Karen A. Phillips, Chief Clerk

Mr. Sam Becker, P.E., Chief
Hazardous Waste Compliance Branch
U.S. Environmental Protection Agency
Region VI - 6H-C
1445 Ross Avenue
Dallas, Texas 75202-2733



Re: Comments on the RCRA Facility Assessment
Texaco Refining and Marketing Inc. - EPA I. D. No. TXD 008097529
Industrial Solid Waste Registration No. 30121 *III*

Dear Mr. Becker:

The following is in response to your letter of November 30, 1987, transmitting comments on the referenced RCRA Facility Assessment.

The five following units are not RCRA units and therefore should be left in the RCRA Facility Investigation (RFI) portion of the draft permit:

1. Landfill - Fac. No. 01;
2. North Ditch - Fac. No. 06;
3. West Ditch - Fac. No. 07;
4. No. 63 Pumphouse Ditch Skimmer - Fac. No. 08; and
5. No. 2 Drainage Plant - Fac. No. 05.

Because of questionable or little ground-water data we will modify the permit to include the following two units:

1. Storm Water Surface Impoundment No. 01; and
2. Process Wastewater Storage Impoundment No. 28.

The pre-RCRA landfill was not included in the RFI due to an oversight. We will also include this unit.

If you have questions or further comments, please contact Leon Byrd of my staff at AC512/463-7977.

Sincerely,

Ray Henry Austin for

Minor Brooks Hibbs, Chief
Permits Section
Hazardous and Solid Waste Division

CEM:lc

cc: TWC District 6 Office - Beaumont

Hopkins *Bonnie*

TEXAS WATER COMMISSION

Paul Hopkins, Chairman
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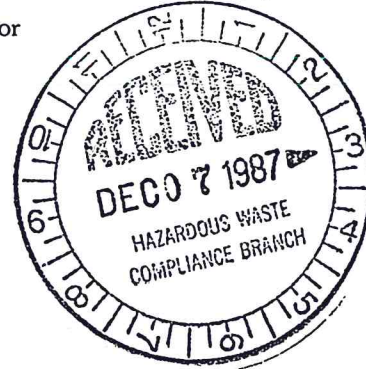


Larry R. Soward, Executive Director

James K. Rourke, Jr., General Counsel
Michael E. Field, Chief Examiner
Karen A. Phillips, Chief Clerk

December 3, 1987

Mr. Sam Becker, P.E., Chief
Hazardous Waste Compliance Branch
U. S. Environmental Protection Agency
Region VI - 6H-C
1445 Ross Avenue
Dallas, Texas 75202-2733



Re: Comments on Initial Draft Permit No. HW-50188
Texaco Refining and Marketing Inc. - EPA I. D. No. TXD 008097529
Industrial Solid Waste Registration No. 30121 *II*

Dear Mr. Becker:

The following is in response to your letter of October 27, 1987, transmitting comments on the referenced draft permit. Provision references are to the initial draft permit.

We concur with comments A1, B2, B4, C2, C3a, C7, C10, and D1.

B1

We believe that this requirement is adequately addressed by Provisions III.A.9., VI.D. and VI.BB.

B3

Provisions IV.B.8. and IV.D.1.c. specifically forbid food chain crops in or on the treatment zone.

B5

The applicant has made no claim of confidentiality.

B6

Although we agree that after the land treatment demonstration closure/post-closure and/or corrective action may be necessary, we do not agree that the permit should designate criteria that would make these actions automatic. Provisions III.A.9., III.B.4., III.B.8., IV.F.4.g., and IV.F.4.h. address these possibilities.

The applicant has submitted a plan for a laboratory demonstration (copy enclosed) to replace the generic field demonstration in the initial draft permit. We are accepting this plan subject to modifications in the permit. Copies of these modifying pages from the final draft permit are enclosed. Comments C1 and C3b are no longer applicable.

Mr. Sam Becker, P.E.

Page 2

December 3, 1987

We will modify the permit to address the ambiguities of C3a, C3d, and C3e.

C3c

We do not agree that requiring background values be measured and reported, while requiring that they not be used in calculations, is an ambiguity.

C4

This comment does not recognize Provision IV.D.1.b.

C5

This comment incorrectly speaks of Provision III.B.3. as related to statistical analysis on sampling results. Provision IV.E.4.d. refers to the operation of the land treatment area, not to the demonstration. We believe that Provisions III.B.6. and III.B.7. already address your concerns, however, we will modify the permit to state specifically that ground-water and unsaturated zone monitoring results and statistical analyses must be submitted in the demonstration report.

C6

We do not agree that it is necessary to change the standard wording to which EPA has previously agreed. Furthermore, we consider the standard wording to adequately summarize the basis for the draft permit.

C8

We will modify Provision II.A. to read "Hazardous wastes authorized to be managed under this permit are limited as follows:"

C10

No hazardous waste management units included in the permit are in the 100-year flood plain.

As a result of the information submitted by the applicant with a letter dated November 6, 1987 (copy enclosed), we have concluded that the following units should be deleted from Section IX of the permit, RCRA Facility Investigation:

IX.A.5. Calcium Reagent Pit (Unit I)

IX.A.8. Heat Exchange Bundle Cleaning

IX.A.20. Oil/Water Separator Impoundment No. 18

IX.B.1. Landfill (Unit 01)

We have indicated to Texaco that it may be appropriate to detail in the Work Plan a basis for modifying and/or deleting other units from the Work Plan.

Mr. Sam Becker, P.E.

Page 3

December 3, 1987

If you have questions or further comments, please contact Leon Byrd of my staff at AC512/463-7977.

Sincerely,

A handwritten signature in cursive script that reads "Minor Brooks Hibbs".

Minor Brooks Hibbs, Chief
Permits Section
Hazardous and Solid Waste Division

Enclosures

CEM:lab

cc: TWC District 6 Office - Beaumont



Bonnie
Red

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VI

ALLIED BANK TOWER AT FOUNTAIN PLACE
1445 ROSS AVENUE
DALLAS, TEXAS 75202

November 30, 1987

MEMORANDUM

Subject: Transmittal of RCRA Facility Assessment Evaluation

From: Erlece P. Allen, Chief
Technical Section (6H-CT) *Erlece P. Allen*

To: William K. Honker, Chief
Permit Section (6H-CP)

Attached please find a copy of the following RCRA Facility Assessment
Evaluation:

- ° Facility Name: Texaco Refining and Marketing, Inc.
- ° EPA ID Number: TXD008097529

Please advise us if more information is required and/or if you need
further assistance.

Attachment

cc: Sam Becker (6H-C)

RCRA FACILITY ASSESSMENT EVALUATION
PRELIMINARY REVIEW AND VISUAL SITE INSPECTION

(NO SAMPLING VISIT)

Region VI, Technical Compliance Section

FACILITY'S NAME(S): Texaco Refining and Marketing, Inc.

EPA ID NUMBER: TXD008097529

ADDRESS: P.O. Box 712, Port Arthur, Texas 77640

LOCATION: East of intersection on HWY Spur 214 and S.H. 73 in Port Arthur,
Jefferson County, Texas

DATE OF INSPECTION: 6/22-25/87

SITE DESCRIPTION: Petroleum Refinery-Products: Alkylates, gasoline,
jet fuels, kerosen, naptha, paraffin wax, solvents, oil.

PREPARED BY: TWC DATE PREPARED: September 4, 1987

REVIEWED BY: Youngmoo Kim DATE REVIEWED: November 2, 1987

ANTICIPATED DRAFT PERMIT DATE: 9/30/87

ANY ON-GOING STATE/FED 264, 265, or 270 CORRECTIVE ACTION OR CERCLA ACTION:

1. Groundwater Assessment (Oct. 1986)
2. Closing for landfill (FAC. No. 1) and Class II Land Treatment

DOES FACILITY HAVE A CERCLA FILE? YES ☐ NO ☒

Was a CERCLA PA/SI performed at this facility: NO

DOES FACILITY HAVE UIC WELL? YES ☐ NO ☒

TYPE OF DRINKING WATER SUPPLY WITHIN A 3-MILE RADIUS:
Surface Water (Port Arthur's drinking water reservoir).

TARGET POPULATION WITHIN A 3-MILE RADIUS:
Approximately 80,000 within a 2 mile radius and 110,000 within a 4 mile radius.

RECOMMENDATIONS: ☐ S.V. ☒ R.F.I. ☐ I.M. ☐ No Further Action under RFA

(Indicate only one unless I.M. is marked)

X 3004(u) ☐ 3007

Possible Enforcement Action: ☐ 3008(a) ☐ 3008(h)

I. Preliminary Review of Prior or Continuing Releases of Solid Waste Management Units (SWMU)

A. Evaluation of Information

1. The main purpose is to determine whether there has been or may have been a release(s) of hazardous waste or hazardous constituents from any SWMUs which will require corrective action measures under Section 3004(u) of the RCRA Hazardous and Solid Waste Amendments (HSWA) of 1984. The SWMUs of concern are:
 - a) SWMUs not regulated under RCRA; and
 - b) SWMUs regulated under RCRA regardless of whether they are subject to ground water monitoring requirements.
2. The purpose of this review is to:
 - a) Identify all SWMU;
 - b) Identify if there have been prior or continuing releases of hazardous wastes or hazardous constituents from such units to any media (air, surface water, ground water, soil & sub-surface gas);
 - c) Determine if such releases caused environmental contamination that would require corrective action; and
 - d) Determine what additional information or investigation is needed to clarify whether there has been a release or if a potential for a release exists.

II. Visual Site Inspection

A. Purpose

- * Verify PR Information
- * Identify additional releases
- * Assess Condition of Solid Waste Management Units (SWMU)
- * Determine Sampling Locations for a Sampling Visit when applicable

B. NUMBER OF SWMU INVESTIGATED DURING THE PR/VSI: 71

<u>LIST OF SWMU</u>	<u>REGULATED BY RCRA*</u> (SUBTITLE C)	<u>STATUS**</u>	<u>SUBJECT TO GWM***</u> <u>SUBPART F</u>
1) Landfill (Fac. No. 1)	Y	I/C	Y
2) Land Treatment (Fac. No. 3)	Y	A	Y
3) Pond or Lagoon (#10 pit)	N	I	N
4) North Ditch (Fac. No. 6)	Y	A	Y
5) West Ditch (Fac. No. 7)	Y	A	Y
6) Surface Impoundment (Fac. No. 8) (No. 63 Pumphouse Ditch Skimmer)	Y	A	Y
7) No. 2 Drainage Plant (Fac. No. 9)	Y	A	Y
8) Bulk Storage Area	N	A	N
9) Lead Weathering Pit	Y	I	Y
10) Calcium Reagent Pit	N	I	N
11) Waste Treatment Facility/Oily Sludge Treating Unit	N	A	N
12) Class II Landfill (Solid Waste Disposal)	N	A	N
13) Class II Land Treatment	N	I/C	N
14) Waste Treatment/Processing Facility	N	A	N
15) #3 Cat Laydown Area	N	I	N
16) FCCU Flare Area	N	I	N
17) Spent Clay Fill	N	I	N
18) 57 Pumphouse	N	C	N
19) Pipe Laydown Area	N	C	N
20) Clay Disposal Area	N	I	N
21) Alum Sludge Ponds	N	A	N
22) Old Biological Sludge Site	N	I	N
23) PACP Locker Room became parking lot	N	C	N
24) #10 Disposal Reservoir	N	I	N
25) North Spoils Area	N	A	N
26) Process Wastewater and Contaminated Storm Water Impoundment No. 25	N	A	N
27) Process Wastewater and Contaminated No. 27	N	A	N
28) Process Wastewater and Contaminated Storm Water Impoundment No. 29	N	I	N
29) Storm Water Surface Impoundment No. 1	N	A	N
30-31) Storm Water Storage Impoundment No. 3 and No. 4	N	A	N
32) Storm Water Storage Impoundment No. 5	N	A	N
33) Storm Water Impoundment No. 6	N	A	N
34) Storm Water Impoundment No. 7	N	A	N
35) Process Wastewater Impoundment No. 2 (Reservoir No. 11)	N	A	N
36) Process Wastewater Storage Impoundment No. 24 (#1 activated Sludge Aeration Basin)	N	A	N

<u>LIST OF SWMU</u>	<u>REGULATED BY RCRA*</u> <u>(SUBTITLE C)</u>	<u>STATUS**</u>	<u>SUBJECT TO GWM***</u> <u>SUBPART F</u>
37) Process Wastewater Storage Impoundment No. 28 (activated Sludge Equalization Pond)	N	#	N
38) Process Wastewater Impoundment No. 41	N	A	N
39) Partially Treated Process Wastewater Impoundment No. 37	N	A	N
40) Partially Treated Process Wastewater Impoundment No. 38	N	A	N
41) Partially Treated Process Wastewater Impoundment No. 39	N	I	N
42) Oil/Water Impoundment No. 9	N	A	N
43) Oil/Water Impoundment No. 10	N	A	N
44-45) Oil/Water Separator Impoundment No. 13 and No. 14	N	I	N
46-47) Oil/Water Separator Impoundment No. 12 and No. 15	N	I	N
48) Oil/Water Separator Impoundment No. 11	N	I	N
49) Oil/Water Impoundment No. 16	N	I	N
50) Oil/Water Impoundment No. 17	N	I	N
51) Oil/Water Impoundment No. 18	N	A	N
52) Process Wastewater Impoundment No. 22	N	I	N
53) Process Wastewater Impoundment No. 40	N	A	N
54) Process Wastewater (Final Clarifier) No. 35	N	I	N
55) Process Wastewater (Primary Clarifier) No. 36	N	C	N
56) Sump for No. 63 Pumphouse Ditch Skimmer	N	A	N
57) Sump for Oil Sludge Treating Unit	N	A	N
58) Landfill (Area K)	N	C	N
59) Satellite Storage Area at the paint shop	N	##	N
60) Container Storage Area for PCB Transformers	N	A	N
61) Heat Exchange Bundle Cleaning Unit	N	A	N
62) Bottom Sediment and Water	N	A	N
63) Cooling Tower Southeast of No. 3 FCCU Flare	N	A	N
64) Cooling Tower West of No. 3 Vacuum Pipe Still	N	A	N
65) Cooling Tower West of No. 4 Vacuum Pipe Still	N	A	N
66) Sump for Ice House Ditch Skimmer	N	I	N
67) Ice House Ditch Simmer (Impoundment No. 42)	N	I	N

<u>LIST OF SWMU</u>	<u>REGULATED BY RCRA*</u> (SUBTITLE C)	<u>STATUS**</u>	<u>SUBJECT TO GWM***</u> <u>SUBPART F</u>
68) Sump for Impoundment No. 18 (Oil/Water Separator)	?	?	?
69) Sump for North and West Ditch Skimmers	N	A	N
70) Landfill (pre - RCRA)	N	C	N
71) Chemical Waste Treating Unit	N	A	N

Converted to Storm Water Storage Impoundment

Transferred to Bulk Storage Area

- C. NUMBER SWMU TO BE INCLUDED IN THE RFI: 34
(Except RCRA units subject to Subpart F refer to Section E)

<u>LIST OF SWMU</u>	<u>RATIONALE</u>
1) Pond or Lagoon (#10 Pit)	Due to the virtually non-existent dike on the north side of the pit, during periods of heavy rainfall, stormwater discharges into the adjacent spend clay disposal area. This stormwater may have become contaminated with wastes in the pit.
2) Calcium Reagent Pit	No documentation (i.e. sampling analysis results) have been provided indicating adequate removal of these wastes.
3) Class II Landfill (No. 12)	Pond of Stormwater was occurring between the landfill and the No. 12 reservoir. An oily sheen was noticeable on the water ponding.
4) Class II Land Treatment Unit	To verify that only non-hazardous wastes are being disposed of in the Class II land treatment areas. Analyses results are pending. Texaco is seeking to permit plots as Class I.
5) #3 Cat Laydown Area	Oily sludges present over extensive areas of this unit. There is a high potential for a release from this unit to the underlying shallow water bearing zone.

LIST OF SWMURATIONALE

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| 6) FCCU Flare Area | Oily sludges were found adjacent to the dike for the drainage canal. The dike for the drainage canal appears to have inadequate freeboard to prevent overtopping. |
| 7) Spent Clay Fill | No cap has been placed over the wastes disposed of at this facility. Based on the types of wastes disposed at this facility and the composition of the bottom liner (natural clay), there appears to be a high potential for a release to the underlying shallow water bearing zone. |
| 8) Pipe Laydown Area | Wastes have been deposited adjacent to Alligator Bayou. No cap was placed over this waste. |
| 9) Clay Disposal Area | Due to the nature of the wastes disposed of here some of which would currently be classified as hazardous, there exists the potential for a release of hazardous constituents to the underlying shallow water bearing zone. |
| 10) Old Biological Sludge Site | There is a large deposit of waste in the impoundment which appears to have a high hydrocarbon content. Due to the location of this waste, there is a possibility that it was transported with runoff from the land treatment area. |
| 11) #10 Disposal Reservoir
(Sludge Impoundment #8) | Groundwater analyses results should be reviewed to determine this SWMU impact on the underlying shallow water bearing zone. This reservoir has occasionally received biological sludge waste since 1984. |
| 12) Process Wastewater and
Contaminated Storm Water
Impoundment No. 25 (#2
Aeration Basin) | The bottom liner is composed of natural clay soil. This unit should be evaluated to determine its impact on the underlying shallow water bearing zone. |

LIST OF SWMURATIONALE

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| 13) Process Wastewater and Contaminated Storm Water Impoundment No. 27 (Equalization Basin) | This unit releases process wastewaters and contaminated storm water from the Texaco chemical plant. This unit should be evaluated for its impact on the underlying shallow water bearing zone. |
| 14) Storm Water Surface Impoundment No. 1 | This impoundment receives contaminated storm water runoff from the old biological sludge site and from the solid waste management area. Groundwater analyses results should be evaluated to determine this units impact on the underlying shallow water bearing zone. |
| 15) Storm Water Storage Impoundment No. 3 and No. 4 | These impoundments receive storm water from the Miller Tank Farm and the Texaco Chemical Plant. Groundwater analyses will be required to evaluate these impoundment's impact on the underlying shallow water bearing zone. |
| 16) Storm Water Storage Impoundment No. 5 | The potential for continuing releases from this unlined unit is moderate to high. Groundwater analyses results should be evaluated to determine this unit's impact on the underlying shallow water bearing zone. |
| 17) Storm Water Impoundment No. 6 | This reservoir has been used for storage of alum sludge and wastewater treatment sludge, and currently used for contaminated storm water storage. Groundwater analyses results should be evaluated to determine this unit's impact on the underlying shallow water bearing zone. |
| 18) Storm Water Impoundment No. 7 | There appears to be an area where an oily substance is seeping from the ground. It appears that the anchoring device has disturbed the ground and thereby allowing the oily |

LIST OF SWMURATIONALE

- substance to surface.
Groundwater analyses will be required to evaluate this unit's impact on the underlying shallow water bearing zone.
- 19) Process Wastewater Impoundment No. 2 (Reservoir No. 11) A substantial amount of oily water enters Alligator Bayou. An effective method is required to prevent oily water from entering Alligator Bayou. This reservoir also receives process wastewaters from Texaco chemical plant.
- 20) Process Wastewater Impoundment No. 28 (Activated Sludge Equalization Pond) This impoundment has occasionally overflowed into Alligator Bayou during periods of heavy rainfall. Since this unit was used for the storage of process wastewater from 1975 until 1979, this unit should be evaluated for its impact on the underlying shallow water bearing zone.
- 21) Process Wastewater Impoundment No. 41 (Reservoir 3 and 4) This impoundment is used for the storage of process wastewaters. The impoundment has a natural clay liner. This unit should be evaluated for its impact on the underlying shallow water bearing zone.
- 22) Oil/Water Impoundment No. 18 This impoundment is used for skimming oils from process wastewater. The walls are constructed of sheet metals. The composition of the bottom liner is not known. There is a potential for a release from this unit to the underlying shallow water bearing zone.
- 23) Sump for No. 63 Pumphouse Ditch Skimmer The area surrounding the pump was observed to be stained with oil.
- 24) Landfill (Area K) This area received approx.. 58,682³ yds of waste, from 1977 through 1979, some of which would currently be classified as hazardous.

LIST OF SWMURATIONALE

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| 25) Heat Exchange Bundle Cleaning Unit | One of the facilities at this unit, the pit at facility B, is used for the storage of hazardous waste. Heat exchanges bundle cleaning sludge is EPA No. K050; Texaco reg. waste no. 74. Texaco needs to provide additional information regarding waste management at facility B. |
| 26) Cooling Tower Southwest of No. 3 FCCU Flare | East side of a cooling tower is an area of discolored soil which indicated possible chromium contamination. The greenish color of the effluent from a discharge pipe for cooling tower blowdown exists the possibility for contamination of the underlying shallow water bearing zone due to chromium accumulation. |
| 27) Cooling Tower West of No. 3 Vacuum Pipe Still | On the south side of a cooling tower is a pool of water with a distinct greenish color due to possible chromium contamination. |
| 28) Cooling Tower West of No. 4 Vacuum Pipe Still | On the east side of a cooling tower is an area of discolored soil which indicates possible chromium contamination. Improper maintenance of the chromate storage tanks may be a contributing factor in this contamination. |
| 29) Ice House Ditch Skimmer (Impoundment No. 42) | According to Texaco's groundwater assessment report dated October, 1986. Analyses results have shown elevated TOC concentration. This skimmer was used during the operation of the grease manufacturing unit. |
| 30) Sump for Ice House Ditch Skimmer | During operation this sump received oils skimmed from Ice House Ditch Skimmer. Additional information regarding the depth and construction of this sump are necessary to determine this unit's impact on the underlying shallow water bearing zone. |

LIST OF SWMURATIONALE

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| 31) Sump for Impoundment No. 18
(Oil/Water Separator) | Process wastewaters that rise above the level of the oil skimmer in impoundment No. 18 are transferred to this sump. The depth of this unit and the composition of the bottom should be clarified to determine the potential for a release from this unit to the underlying shallow water bearing zone. |
| 32) Sump for North and West
Ditch Skimmers | Groundwater analyses results from wells surrounding this unit have indicated contamination of the shallow water bearing zone. There would appear to be a high potential for a release to groundwater. |
| 33) Landfill | This pre-RCRA unit has an insufficient information. |
| 34) Sump for Oil Sludge Treating
Unit (Facility No. 15) | Spillage of waste has occurred around the loading platform. Texaco representatives were appraised of the spillage. |

- D. NUMBER OF SWMU WITH NO INDICATED RELEASES: 29
 (Documentation is necessary for a SWMU to be included in this category.)

<u>LIST OF SWMU</u>	<u>RATIONALE</u>
1) Calcium Reagent Treatment Unit	This unit is part of the NPDES treatment system and meets the definition of a tank and therefore exempt from permitting requirements. The potential for continuing release is minimal.
2) Waste Treatment Facility/Oil Sludge Treating Unit	No evidence of release except the spillage of filter cake.
3) Waste Treatment/Processing Facility	The entire facility was covered and is located in a paved area.
4) 57-Pumphouse	This area is converted to a parking lot.
5) Alum Sludge Ponds	These ponds have been used solely for the disposal of Class III wastes (Biodegradable non-hazardous material).
6) PACP Locker Room	Became a parking lot. The potential for continuing release is low according to VSI report.
7) North Spoils Area	There is no evidence of dredge spoils or any other waste. This area is currently used for recreational activities.
8) Process Wastewater and Contaminated Storm Water Impoundment No. 29	This unit is used primarily for the storage of storm water, the potential for a release to the underlying shallow water bearing zone is low.
9) Process Wastewater Storage Impoundment No. 24 (#1 Activated Sludge Aeration Basin)	Currently this unit functions as a storm water storage impoundment. The dike is composed of concrete and the bottom liner is composed of clay. No potential or actual groundwater contamination is observed.
10-12) Partially Treated Process Wastewater Impoundment No. 37, No. 38, No. 39	No actual and potential groundwater contamination was observed.

LIST OF SWMURATIONALE

- 13) Oil/Water Impoundment No. 9
(#2 Bar Pit)

The walls of this sump are concrete and the bottom liner is clay. Skimmed oils from the Texaco Chemical Plant equalization pond are pumped into this sump. Visual inspection of the sump is used to maintain level control. No problems were noted.

- 14) Oil/Water Impoundment No. 10

Cement walls function as the dike. Visual inspection of the sump is used to maintain level control. The sump is currently inactive. No problems were noted.

- 15-19) Oil/Water Impoundments
(No. 11, No. 12, No. 13,
No. 14, and No. 15)

Most of the impoundments are lined with select clay like materials. due to the type of the waste deposited, the potential for continuing release from these units is low to moderate.

- 20-21) Oil and Water Separator
Impoundments No. 16 and No. 17

Both impoundments have been inactive for many years and no oil was present. Both units have the same design which consists of a clay berm constructed diagonally across the corner of the reservoir.

- 22) Process Wastewater Impoundment
No. 22

A substance oil/water separator became inactive in 1979 since then, it has been removed and the area has been built over.

- 23) Process Wastewater Impoundment
No. 35 (Final Clarifier)

This unit, a concrete lined impoundment, began operating in 1977 and became inactive in 1978. This unit currently contains only storm water. The likelihood of a release is minimal.

- 24) Process Wastewater Impoundment
No. 36 (Primary Clarifier)

This unit, an onground, steel tank began operating in 1977 and was closed in 1978. No problems were noted.

- 25) Process Wastewater Impoundment
No. 40

An aboveground, concrete lined oil/water separator was dismantled and no evidence of this unit remains.

<u>LIST OF SWMU</u>	<u>RATIONALE</u>
26) Satellite Storage Area	This storage area consists of one 55-gallon drum located inside the paint shop. The drum appeared to be in good condition.
27) Containers Storage Area for PCB Transformer	All of the transformers are stoned on pellets. The transformers were all in good condition.
28) Bottom Sediment and Water	This facility receives oils that have been skimmed from drainage canals, sumps, and oil/water ditch skimmers. No evidence of release was observed.
29) Chemical Waste Treating Unit	Two skimmers used for siphoning off oil are located within the tank superstructure. The entire unit is surrounded by a 6" concrete curb. No problems were noted.

E. SUPPLEMENTAL INFORMATION ON RCRA REGULATED UNITS: 8
 (Describe any problems identified or suspected from regulated units including identified releases to groundwater)

<u>LIST OF SWMU</u>	<u>CONCERNS</u>
1) Landfill Fac. No. 1)	Continuous exposure of wastes (xylene, ethylbenzene, Cl_2 , SO_3^{1-}) to the surface and groundwater.
2) Land Treatment (Fac. No. 3)	Groundwater analysis results are pending. There is a shallow groundwater table underneath of this unit and its potential impact on the city of Port Arthur reservoir located approx.. one mile to the north.
3) North Ditch (Fac. No. 6)	Due to insufficient containers, oily trash was noticed to be strewn about the trash skimmer's base. Oily wastewater draining from this trash flows off the cement pad down the shell covered embankment and back into the ditch skimmer. Ground water analyses results indicator contamination of the shallow groundwater aquifer beneath the North Ditch.

LIST OF SWMURATIONALE

4) West Ditch (Fac. No. 7)

Groundwater analyses results indicate the shallow groundwater beneath this unit is contaminated.

5) Bulk Storage Area

Several plastic bags used to store asbestos waste had developed tears, exposing the asbestos waste.

6) Lead Weathering Pit

This facility is inactive since 1982 awaiting final closure under TWC. Release from past contamination is possible to subsoil and groundwater.

7) Surface Impoundment No. 21
(Fac. No. 8: No. 63 Pumphouse
Ditch Skimmer)

The problem noted concerned erosion of the earthen embankment adjacent to the metal wall at the northwest area of the skimmer. Due to this erosion, oily wastewaters have collected behind the sheet metal pilings and there is visual evidence of contaminated soil.

8) No. 2 Drainage Plant (Impoundment
No. 9, Fac. No. 9)

The skimmed oil flows to a sump located in the northwestern area of the ditch skimmer. The shallow water bearing zone beneath the ditch skimmer is contaminated.

II. FINDINGS

A. RECOMMENDATIONS: (EPA, STATE and/or CONTRACTOR)

STATE (TWC): TWC recommended the RFI for 36 units. However, according to the PR, 5 of them are RCRA regulated units: 1) Landfill (Fac. No. 01), 2) North Ditch (Fac. No. 06), 3) West Ditch (Fac. No. 07), 4) No. 63 Pumphouse Ditch Skimmer (Fac. No. 08), 5) No. 2 Drainage Plant (Fac. No. 05). These five units should be addressed through the permit process if this is the case. However, according to the VSI, these 5 SWMUs are not RCRA regulated units.

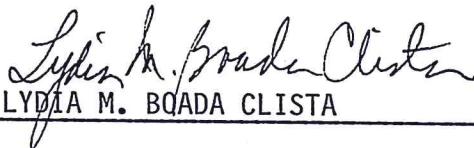
According to the VSI, a RFI was recommended for the following 3 units which were missing in the RFA transmittal letter from TWC: 1) Storm Water Surface Impoundment No. 1; 2) Process Wastewater Storage Impoundment No. 28 and 3) Landfill (Pre-RCRA Unit).

EPA: We agree with the RFI recommended by State for 31 units and additional 3 units in the VSI reports (See Section I, C of this evaluation).

B. ADDITIONAL COMMENTS:

The information in the PR, the transmittal letter and the VSI are contradictory, particularly, in terms of RCRA regulated units.

CONCUR:


LYDIA M. BQADA CLISTA

DATE: 11/2/87



Texas WCA

November 6, 1987

Re: Texaco Refining and Marketing Inc.
Permit No. HW-50188

Mr. Minor B. Hibbs
Permits Section
Hazardous and Solid Waste Division
Texas Water Commission
P. O. Box 13087, Capitol Station
Austin, Texas 78711

Dear Mr. Hibbs:

Please refer to your September 18 letter to me transmitting a draft copy of the subject permit. Also refer to our October 28 letter which offered comments regarding the referenced draft. This November 6 letter includes supplemental information regarding the RCRA facility investigation which supports our belief that several units should not be included in the draft permit. This letter also outlines an alternative groundwater detection system because of the unique hydrogeologic situation at our facility.

Our specific comments follow:

A. Surface Impoundments:

- TWC #1. North Ditch Skimmer (Unit Q)
- TWC #2. West Ditch Skimmer (Unit R)
- TWC #3. No. 2 Drainage Plant Skimmer (Unit 5)

A closure plan for each of these three units was submitted to you on July 13, 1987. Dredging on the North Ditch Skimmer is anticipated to be completed this month. Because these three units are being closed under this plan, they should not be included in the draft permit as subject to further investigation.

TWC #5. Calcium Reagent Pit (Unit I)

The TWC investigation report for this unit concluded:

"Although Texaco states in its Part B application that all hazardous wastes have been removed from this pit, no documentation (i.e. sampling results) have been provided indicating adequate removal of these wastes. A remedial investigation is recommended for this unit in order to verify that no hazardous wastes are remaining in this pit."

Texaco, as reported under Superfund, ceased using this facility in October 1980, and all remaining calcium reagent was removed. The Kemron analysis, appended as Exhibit A, of the calcium reagent pit shows that no hazardous wastes remain in the pit. Since sampling and analysis have verified that no hazardous wastes remain at this unit, as requested in the TWC investigation report, this unit should be deleted from the draft permit as a site subject to further investigation.

TWC #8. Heat Exchange Bundle Cleaning

The TWC investigation report for this unit concluded that:

"(Texaco) will probably need to demonstrate that the pit is a subsurface tank and not an impoundment. No other problems were noted regarding operation of this unit."

The photograph and Foundation Plan and Details for the Exchanger Bundle Cleaning Facilities (Number Y-55892), appended as Exhibit B, show that this unit is constructed of one foot thick steel bar reinforced concrete walls and bottoms and is considered a tank under the definition provided in 40 CFR 260.10. Texaco intends to conduct an assessment of the tank system's integrity consistent with 40 CFR 265.191 by January 12, 1988.

Because this is a tank and because the integrity test required under CFR 265.191 will demonstrate if there has been a release from this facility, this unit should not be included in the draft permit as a site subject to further investigation.

TWC #12. Impoundment #25 (#2 Aeration Basin)

The TWC investigation report stated that:

"The sides of the impoundment are constructed of concrete while the bottom liner is composed of natural clay soil."

Drawings Y-88843 and Y-86855-0 and a photograph appended as Exhibit C show that impoundment #25 was constructed by using concrete walls and excavating existing soils and replacing them with compacted "heavy dense clay" which would act as a more effective barrier to vertical migration into the underlying water bearing zone through native clay. For this reason impoundment #25 should be deleted from the draft permit as a site subject to further investigation.

TWC #20. Oil/Water Separator Impoundment No. 18

The TWC investigation report for this unit concluded:

"If the bottom liner of this unit is natural clay, then the potential release of hazardous constituents to groundwater would be high and further investigation would appear to be warranted."

The Oil-Water Separator Sheet Piling Plan (Y-78439-3) and Details and Foundation Plan (Y-78429-3) along with photographs are appended as Exhibit D. These drawings show that the bottom of this impoundment is concrete, reinforced on six inch centers, and not the natural clay used as a basis for recommending further investigation. Because the bottom is reinforced concrete, the potential for release of hazardous constituents is minimal. For this reason this impoundment should not be included in the draft permit as a site subject to further investigation.

B. Landfills:

TWC #1. Landfill (Unit 01)

On October 19, 1987, we submitted a closure plan to Mr. Bryan Dixon at the TWC for this inactive Class 1 landfill unit. The closure plan is currently being reviewed by the TWC. As confirmed by Dr. Charles Monk in our meeting on October 26, 1987, Because this unit will be closed under a TWC approved closure plan, it should not be included in the draft permit as subject to further investigation.

Mr. Minor B. Hibbs
Page 4
November 6, 1987

TWC #3. No. 3 Cat Laydown Area (Unit A) and

TWC #6. Pipe Laydown Area (Unit E)

In your letter of September 4, 1987 to Mr. Sam Beck, U.S. EPA, you recommended "no further action" for these areas. We are not aware of any findings following the Preliminary Review and the Visual Site Inspections that would result in including these units as candidates for an investigation. We support your recommendation that these units not be included in the draft permit as subject to further investigation.

TWC #5. Spent Clay Fill (Unit C)

As indicated in the TWC investigation summary, we have begun a feasibility study for recycling wastes at this unit. On June 30, 1987, Texaco Refining and Marketing Inc. entered into an agreement with C F Systems Corp. to conduct a project demonstration of their pilot unit on the spent clay from this unit. This pilot unit feasibility study is currently underway as shown in the photograph in Exhibit E. Because of the size of this area and the recycle potential, we request that a facility investigation of this unit be postponed until this recycle feasibility study is concluded.

TWC #8 Landfill Area Behind Office at Disposal Site (Unit K)

This unit has been included in the closure plan for the inactive Class 1 landfill (See TWC #1-Unit 01) submitted to Mr. Bryan Dixon on October 19, 1987. As confirmed by Dr. Charles Monk in our meeting on October 26, 1987, because this unit will be closed under a TWC closure plan, it should not be included in the draft permit as subject to further investigation.

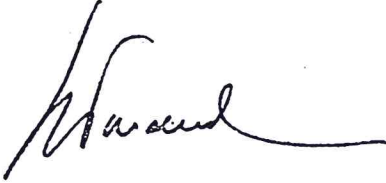
Because of a unique hydrogeologic situation at our facility (some of the units act as groundwater sinks), it may not be possible to install at all units the groundwater release detection program as put forth in the draft permit or as modified in my letter of October 28, 1987. An additional change to cover these situations is proposed in Exhibit F. This change found on pages 3 and 4 of Exhibit F will allow the permittee to propose an alternative groundwater detection system where it is not possible to install one upgradient and three down gradient wells.

Mr. Minor Hibbs
Page 5
November 6, 1987

This completes our supplemental information concerning the referenced draft permit. We appreciate your consideration of these comments.

Yours very truly,

TEXACO REFINING AND MARKETING INC.

A handwritten signature in cursive script, appearing to read "Howard", with a long horizontal flourish extending to the right.

GRM:JMBs

BLIND: RAC-JSL
WRC

Attachments

EXHIBIT A

CALCIUM REAGENT PIT SAMPLE ANALYSIS

ANALYTICAL RESULTS REPORT

ON

TEXACO PAP CALCIUM REAGENT PIT
OCTOBER 20, 1987 SLUDGE SAMPLE

SUBMITTED TO:

MR. GEORGE MAYS

TEXACO REFINING & MARKETING, INC.
POST OFFICE BOX 712
PORT ARTHUR, TEXAS 77640

SUBMITTED BY:

KEMRON ENVIRONMENTAL SERVICES
1216 PORT NECHES AVENUE
PORT NECHES, TEXAS 77651

NOVEMBER, 1987

C O N T E N T S

SUMMARY: SAMPLE COLLECTION AND ANALYSIS RESULTS

<u>SECTION</u>	<u>DESCRIPTION</u>	<u>PAGE</u>
1	ANALYTICAL RESULTS	
	A. RCRA General Hazardous Waste Characteristics	01
	B. Total Basis Skinner List Parameters	02 - 06
2	ANALYSIS VALIDATION	
	Sample Collection, Preservation, Analytical	07 - 11
	Methods, and Detection Limits	
	A. Quality Assurance Reports	12 - 25
	B. GC/MS Analysis Documentation	
	1. GC/MS Performance Validation and Quality Assurance	26 - 32
	2. Analysis Reconstructive Ion	33 - 38
	Chromatograms (RICs)	

SUMMARY
OF
SAMPLE COLLECTION AND ANALYSIS RESULTS

KEMRON Environmental Services was retained by TEXACO Petroleum Company to collect a sludge sample from its Calcium Reagent Pit.

On October 20, 1987 Mr. Gregory J. Haynes representing KEMRON collected a four-part composite sample from the pit. The sludge sample was collected from a generally rectangular area measuring about 20 ft. by 35 ft. with a water column of varying depth. Subsamples were collected from the uppermost 6 to 12 inches of the area. Surface sludge was white in color with the deeper material being a light gray.

Sludge was collected using a sampling trier and subsamples were placed in a stainless steel container before the final composite was made in bottles.

With the exception of EP leachate lead at 4.0 mg/l, all other Waste Characteristics approached regulatory criteria. Heavy metal concentrations ranged from non-detected for five (5) elements (cadmium, nickel, and selenium) to 250 ppm measured for lead. Skinner List organics were quantified with the remainder being non-detected. Volatile compounds ethyl benzene and xylene were detected at 2,350 ppb, respectively. Two (2) base/neutral extractables were quantified at 970 and 2,330 ppb, respectively.

SUMMARY: SAMPLE COLLECTION AND ANALYSIS RESULTS

SECTION

1 ANALYTICAL RESULTS
A. RCRA General Screening
B. Total Base and Acid

2 ANALYSIS VALIDATION
Sample Collection Methods, and
A. Quality Assurance
B. GC/MS Analysis
1. GC/MS Performance
Quality Assurance
2. Analysis of Sample
Chromatograms

CLIENT: Texaco PAP
SAMPLE SOURCE: Calcium Reagent Pit
KEMRON LAB NO.: 2710988
DATE & TIME COLLECTED: 10-20-87 @ 1500



ANALYSIS RESULTS
RCRA HAZARDOUS CHARACTERISTICS

<u>CHARACTERISTICS</u>	<u>RESULT</u> (1)	<u>CRITERIA</u> (2)	<u>DATE/TIME/ANALYST</u>
<u>CORROSIVITY</u>			
as pH, Standard Units	7.5	<2 or >12.5	10-27-87 @ 1600 SC
as rate, mm/yr	<0.02	<6.35	10-23-87 @ 1000 RM
<u>EP TOXICITY</u>			
<u>METALS</u>			
Arsenic	<0.005	<5.0	10-27-87 @ 1600 SCJ
Barium	<0.1	<100.0	10-28-87 @ 1400 SCJ
Cadmium	<0.005	<1.0	10-26-87 @ 1515 SCJ
Chromium	<0.05	<5.0	10-26-87 @ 1330 SCJ
Lead	4.0*	<5.0	10-28-87 @ 1045 SCJ
Mercury	<0.0002	<0.2	10-23-87 @ 1530 SCJ
Selenium	<0.005	<1.0	10-27-87 @ 1130 SCJ
Silver	<0.005	<5.0	10-26-87 @ 1255 SCJ
<u>IGNITABILITY</u>			
Flashpoint, °C	>60	<60	10-28-87 @ 1000 RM
<u>REACTIVITY</u>			
Reactive Cyanide as HCN, mg/kg	<250	<250	10-23-87 @ 2200 DS
Reactive Sulfide as H ₂ S, mg/kg	<500	<500	10-23-87 @ 2200 DS

- (1) Results are expressed in units of mg/l unless otherwise noted.
- (2) Result(s) not meeting hazardous characteristic criteria cause the waste material to be classified as hazardous under the applicable characteristic.
- (3) This is an interim threshold level specified by EPA and determined by draft procedures.

* Leachate was reanalyzed 10/30 with a concentration of 4.4 mg/l reported.

RESULTS OF ANALYSIS*

SKINNER LIST
METALS**Kemron**
Environmental Services

CLIENT: Texaco PAP
SAMPLE SOURCE: Calcium Reagent Pit
KEMRON LAB NO.: 2710988
DATE & TIME COLLECTED: 10-20-87 @ 1500

<u>METAL</u>	<u>CONCENTRATION</u> [*] (MG/KG - PPM)	<u>DATE/TIME/ANALYST</u>
Antimony	<5	10-29-87 @ 1125 SCJ
Arsenic	8.3	10-29-87 @ 1540 SCJ
Barium	18	10-29-87 @ 1150 SCJ
Beryllium	<0.125	10-29-87 @ 1140 SCJ
Cadmium	<0.125	10-29-87 @ 1050 SCJ
Chromium	6.6	10-29-87 @ 1000 SCJ
Cobalt	5.4	10-29-87 @ 1030 SCJ
Lead	47	10-29-87 @ 1105 SCJ
Mercury	0.99	10-30-87 @ 1030 SCJ
Nickel	<1.0	10-29-87 @ 1015 SCJ
Selenium	<0.125	10-29-87 @ 1140 SCJ
Vanadium	250	10-29-87 @ 1330 SCJ

COMMENTS: * Total concentration expressed on a sample 'as is' basis.
Sample is 54% solids.

RESULTS OF ANALYSIS*

SKINNER LIST
ACID EXTRACTABLE ORGANICS

CLIENT: Texaco PAP
SAMPLE SOURCE: Calcium Reagent Pit
KEMRON LAB NO.: 2710988
DATE & TIME COLLECTED: 10-20-87 @ 1500

<u>COMPOUND</u>	<u>CONCENTRATION*</u> (UG/KG - PPB)
Benzenethiol**	BDL
o-Cresol**	BDL
m-Cresol**	BDL
p-Cresol**	BDL
2,4-Dimethylphenol	BDL
2,4-Dinitrophenol	BDL
4-Nitrophenol	BDL
Phenol	BDL

BDL: Below Detection Limit

Sample Dilution Factor: 33⁽¹⁾

Date Extracted: 10-27-87
Date & Time Analyzed: 10-27-87 @ 2217

By: Charles W. Heurtevant

COMMENTS: * Total concentration expressed on a sample 'as is' basis.
Sample is 54% solids.

** Compound standard is not analyzed and the detection limit presented
in Table I is an estimated value.

(1) Standard dilution for soil or sludge analysis.

RESULTS OF ANALYSIS*

SKINNER LIST
BASE/NEUTRAL EXTRACTABLE ORGANICS
PAGE 01 OF 02

CLIENT: Texaco PAP
SAMPLE SOURCE: Calcium Reagent Pit
KEMRON LAB NO.: 2710988
DATE & TIME COLLECTED: 10-20-87 @ 1500

<u>COMPOUND</u>	<u>CONCENTRATION</u> [*] (UG/KG - PPB)
Anthracene	BDL
Benzo(a)anthracene	BDL
Benzo(b)fluoranthene	BDL
Benzo(k)fluoranthene	BDL
Benzo(a)pyrene	BDL
Bis(2-ethylhexyl) phthalate	BDL
Butyl benzyl phthalate	BDL
Chrysene	BDL
Dibenz(a,h)acridine ^{**}	BDL
Dibenz(a,h)anthracene	BDL
Dichlorobenzenes	BDL
Diethyl phthalate	BDL
7,12-Dimethylbenz(a)anthracene ^{**}	BDL

BDL: Below Detection Limit

SKINNER LIST
BASE/NEUTRAL EXTRACTABLE ORGANICS
PAGE 02 OF 02

CLIENT: Texaco PAP
SAMPLE SOURCE: Calcium Reagent Pit
KEMRON LAB NO.: 2710988
DATE & TIME COLLECTED: 10-20-87 @ 1500

<u>COMPOUND</u>	<u>CONCENTRATION</u> [*] (UG/KG - PPB)
Dimethyl phthalate	BDL
Di(n)butyl phthalate	BDL
Di(n)octyl phthalate	BDL
Fluoranthene	BDL
Indene**	970 ⁽¹⁾
Methyl chrysene	BDL
1-Methyl naphthalene	BDL
Naphthalene	2,330
Phenanthrene	BDL
Pyrene	BDL
Pyridine**	BDL
Quinoline**	BDL

BDL: Below Detection Limit

Sample Dilution Factor: 33⁽²⁾

Date Extracted: 10-27-87

Date & Time Analyzed: 10-27-87 @ 2217 By: Charles W. Heurtevant

COMMENTS: * Total concentration expressed on a sample 'as is' basis. Sample is 54% solids.

** Compound standard is not analyzed and the detection limit presented in Table II is an estimated value.

(1) Semi-quantitated concentration calculated based on the nearest internal standard assuming a response factor of one (1).

(2) Standard dilution for soil or sludge analysis.

RESULTS OF ANALYSIS*

SKINNER LIST
VOLATILE ORGANICS

CLIENT: Texaco PAP
SAMPLE SOURCE: Calcium Reagent Pit
KEMRON LAB NO.: 2710988
DATE & TIME COLLECTED: 10-20-87 @ 1500

<u>COMPOUND</u>	<u>CONCENTRATION</u> [*] (UG/KG - PPB)
Benzene	BDL
Carbon disulfide	BDL
Chlorobenzene	BDL
Chloroform	BDL
1,2-Dichloroethane	BDL
1,4-Dioxane ^{**}	BDL
Ethyl benzene 400	
Ethylene dibromide	BDL
Methyl ethyl ketone	BDL
Styrene	BDL
Toluene	BDL
Xylene 2,350	

BDL: Below Detection Limit

Sample Dilution Factor: 50⁽¹⁾

Date & Time Analyzed: 10-28-87 @ 1053

By: Larry Hogan

COMMENTS: * Total concentration expressed on a sample 'as is' basis. Sample is 54% solids.

** Compound standard is not analyzed and the detection limit presented in Table III is an estimated value.

(1) Standard dilution for soil or sludge analysis.

RCRA HAZARDOUS CHARACTERISTICS
AND SKINNER LIST ANALYSES



ANALYTICAL DOCUMENTATION AND METHODOLOGIES

(1) PARAMETER	(2) METHOD REFERENCE	(3) METHOD DETECTION LIMIT
Acid Extractables, Skinner List	8270	See Table I
Antimony	7040	0.2*
Arsenic	7061	0.005
Base/Neutral Extractables, Skinner List	8270	See Table II
Barium	7080	0.1
Beryllium	7090	0.005*
Cadmium	7130	0.005
Chromium	7190	0.05
Cobalt	7200	0.05*
Corrosivity as pH, Standard Units	9040	0.1
Corrosivity as rate, mm/yr	1110	0.01
Extraction Procedure	1310	N/A
Ignitability (Flashpoint °C)	1010	60
Lead	7420	0.05
Mercury	7470	0.0002
Nickel	7520	0.04*
Reactivity:		
reactive cyanide, mg/kg HCN	(4)	250
reactive sulfide, mg/kg H ₂ S	(4)	500
Selenium	7741	0.005
Silver	7760	0.005
Vanadium	7910	0.2*
Volatile Organics, Skinner List	8240	See Table III

- (1) Samples are collected in containers as detailed in Chapter 1 of note (2) document.
- (2) Method number from Test Methods for the Evaluation of Solid Waste, USEPA, SW-846 (2nd Ed.) July, 1982.
- (3) Method Detection Limit expressed in mg/l except as noted by parameter.
- (4) Draft test method as referenced in EPA memorandum from Ms Eileen Claussen; Director, Characterization and Assessment Division, Office of Solid Waste and Emergency Response.
- * Aqueous phase; detection limit in a 'solid' matrix is dependent upon the weight of sample analyzed.

ANALYST

MA- Madhava Arimilli, (Mgr. Anl. Serv.)	SC- Seshu Chalasani, (Chemist)
RM- Robert Murray, (Lab Tech.)	SM- Sayi Malineni, (Chemist)
HG- Helen Gugich, (Lab Tech.)	CM- Coleen Murray, (Chemist)
CWH- Charles C. Heurtevant, (Chemist)	LH- Larry Hogan, (Lab Asst.)
SCJ- Sarah C. Jones, (Lab. Supvr.)	GH- Grace Heurtevant, (Analyst)
DS- Debbie Sonnier, (Lab Tech.)	SC- Sandy Comeaux, (Lab Tech.)

TABLE I

SKINNER LIST ACID EXTRACTABLE ORGANICS

DETECTION LIMITS^{*}

<u>COMPOUND</u>	<u>DETECTION LIMIT</u> (UG/KG - PPB)
Benzenethiol ^{**}	330
o-Cresol ^{**}	330
m-Cresol ^{**}	330
p-Cresol ^{**}	330
2,4-Dimethylphenol	1,650
2,4-Dinitrophenol	1,650
4-Nitrophenol	1,650
Phenol	330

* Routine soil/sludge detection limits using EPA analytical protocol.

** Detection limit is estimated because a standard is not analyzed.

TABLE 2

SKINNER LIST
BASE/NEUTRAL EXTRACTABLE ORGANICS
PAGE 01 OF 02

DETECTION LIMITS*

<u>COMPOUND</u>	<u>DETECTION LIMIT</u> (UG/KG - PPB)
Anthracene	330
Benzo(a)anthracene	330
Benzo(b)fluoranthene	330
Benzo(k)fluoranthene	330
Benzo(a)pyrene	330
Bis(2-ethylhexyl) phthalate	330
Butyl benzyl phthalate	330
Chrysene	330
Dibenz(a,h)acridine **	330
Dibenz(a,h)anthracene	330
Dichlorobenzenes	330
Diethyl phthalate	330
7,12-Dimethylbenz(a)anthracene **	330

T A B L E 2 CONT'D

SKINNER LIST
BASE/NEUTRAL EXTRACTABLE ORGANICS
PAGE 02 OF 02

DETECTION LIMITS *

<u>COMPOUND</u>	<u>DETECTION LIMIT</u> (UG/KG - PPB)
Dimethyl phthalate	330
Di(n)butyl phthalate	330
Di(n)octyl phthalate	330
Fluoranthene	330
Indene **	330
Methyl chrysene	330
1-Methyl naphthalene	330
Naphthalene	330
Phenanthrene	330
Pyrene	330
Pyridine **	330
Quinoline **	330

* Routine soil/sludge detection limits using EPA analytical protocol.

** Detection limit is estimated because a standard is not analyzed.

TABLE 3

SKINNER LIST
VOLATILE ORGANICS

DETECTION LIMITS *

<u>COMPOUND</u>	<u>DETECTION LIMIT</u> <u>(UG/KG - PPB)</u>
Benzene	250
Carbon disulfide	250
Chlorobenzene	250
Chloroform	250
1,2-Dichloroethane	250
1,4-Dioxane **	1,000
Ethyl benzene	250
Ethylene dibromide	250
Methyl ethyl ketone	250
Styrene	250
Toluene	250
Xylene	250

* Routine soil/sludge detection limits using EPA analytical protocol.

** Detection limit is estimated because a standard is not analyzed.

EXHIBIT B

EXCHANGER BUNDLE CLEANING FACILITY

FOUNDATION PLAN AND DETAILS

PHOTOGRAPH



file TXD008097529

L T Townsend
Manager
Port Arthur Area

Texaco USA

PO Box 712
Port Arthur TX 77640

~~TX 3035~~
~~DT 884~~

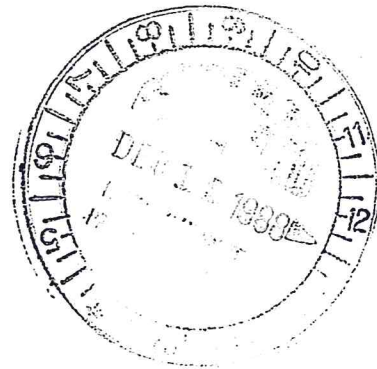
RECEIVED

DEC 08 1988

6W-EA

December 1, 1988

Re: Texaco Refining and Marketing Inc. (Texaco)
Port Arthur Plant (PAP)
Port Arthur Asphalt Complex (PAAC)
ENV 1354 & 1050 (6-AW-88)



Mr. Dan Eaton, P.E., Director
Hazardous and Solid Waste Division
Texas Water Commission
P. O. Box 13087, Capitol Station
Austin, TX 78711

Attention: Mr. Ed Hatton

Dear Mr. Eaton:

This is to notify you that, effective December 31, 1988, the following Texaco facilities will transfer to STAR Enterprise (STAR):

PAP	TWC Solid Waste Registration No. 30121	OK
	EPA I.D. No. TXD008097529	
PAAC	TWC Solid Waste Registration No. 30017	OK
	EPA I.D. No. TXD980626022	

The above facilities' registration and identification numbers should be transferred to STAR. In addition, the Notices of Registration should also be transferred to STAR.

Mr. Dan Eaton
Page 2
December 1, 1988

Should questions arise, contact O. R. Marshall at (409) 989-7166.

Yours very truly,

TEXACO REFINING AND MARKETING INC.

SIGNED: L. I. TOWNSEND/MIK

ORM:JMBs

cc: Leon Byrd, TWC, Austin, TX, Permits
Sherry Pierce, TWC, Austin, TX, Enforcement
Harry Boudreaux, TWC, Beaumont
U.S.E.P.A., Dallas, TX

JUN 17 1988

CERTIFIED MAIL RETURN RECEIPT REQUESTED

Mr. J. F. Kinsel
Texaco Refining and Marketing, Inc.
1111 Rusk
Houston, Texas 77002

RE: Transmittal of Hazardous Waste Permit for
Texaco Refining and Marketing, Inc. TXDO08097529

Dear Mr. Kinsel:

Enclosed is a copy of your permit to operate a hazardous waste facility, pursuant to the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA). The Texas Water Commission has not yet been delegated authority for HSWA. Therefore, in order for the permit to be considered a full RCRA permit, it must be issued under the State program authority as well as the Federal authority for the additional HSWA requirements.

Please note that Provision IX of the permit requires submittal of a workplan for a RCRA Facility Investigation (RFI) for 34 Solid Waste Management Unit. Any submittal under this provision must be made directly to EPA as well as TWC. For the purposes of EPA review, multiple workplans or reports shall be consolidated into one submittal which encompasses the full scope of the investigation. Also, note that Provision VI (A through FF), and IX has been marked with an asterisk (*), denoting Federal HSWA authority.

If you have any questions, please contact Bill Honker of my staff at (214) 655-6785.

Sincerely yours,

Allyn M. Davis
Director
Hazardous Waste Management Division (6H)

Enclosure

cc: Bryan W. Dixon
Texas Water Commission

bcc: Dave Peters (6E-SH) Bill Taylor (6H-CE)
Guanita Reiter (6H-HO) Erlece Allen (6H-CT)

6H-CP:FINCH:pt:5-6785:5/31/88:DISK VICKEY'S #3:FILE CODE:

6H-CP 6H-CP 6H-CP 6H-C
ABLEN FRANKE HONKER BECKER
DAILY 4/15/88 WOK 6/15 WOK 6/14



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VI

1445 ROSS AVENUE, SUITE 1200
DALLAS, TEXAS 75202

June 17, 1988

CERTIFIED MAIL RETURN RECEIPT REQUESTED

Mr. J. F. Kinsel
Texaco Refining and Marketing, Inc.
1111 Rusk
Houston, Texas 77002

RE: Transmittal of Hazardous Waste Permit for
Texaco Refining and Marketing, Inc. TXD008097529

*RCRA
Permits*

Dear Mr. Kinsel:

Enclosed is a copy of your permit to operate a hazardous waste facility, pursuant to the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA). The Texas Water Commission has not yet been delegated authority for HSWA. Therefore, in order for the permit to be considered a full RCRA permit, it must be issued under the State program authority as well as the Federal authority for the additional HSWA requirements.

Please note that Provision IX of the permit requires submittal of a workplan for a RCRA Facility Investigation (RFI) for 34 Solid Waste Management Unit. Any submittal under this provision must be made directly to EPA as well as TWC. For the purposes of EPA review, multiple workplans or reports shall be consolidated into one submittal which encompasses the full scope of the investigation. Also, note that Provision VI (A through FF), and IX has been marked with an asterisk (*), denoting Federal HSWA authority.

If you have any questions, please contact Bill Honker of my staff at (214) 655-6785.

Sincerely yours,

Jack L. Davis

for Allyn M. Davis
Director
Hazardous Waste Management Division (6H)

Enclosure

cc: Bryan W. Dixon
Texas Water Commission

AUTHORIZATION TO OPERATE UNDER THE
RESOURCE CONSERVATION AND RECOVERY ACT

In compliance with the Resource Conservation and Recovery Act (RCRA), as amended,

Texaco Refining and Marketing, Inc.
P.O. Box 712
Port Arthur, Texas 77640

is authorized to dispose of hazardous waste in accordance with the limitations, requirements and other conditions set forth herein at a facility located in Jefferson, County, Port Arthur, Texas. (North Latitude 29°53'14" West Longitude 93°58'42").

This is a joint permit issued by the Texas Water Commission (TWC) and the Environmental Protection Agency (EPA) and is issued, in part, pursuant to the provisions of Section 206, 212, and 224 of the Hazardous and Solid Waste Amendments of 1984 (HSWA) which modified Sections 3004 and 3005 of the RCRA. The provisions in this permit marked with an asterisk (*) stem from the HSWA and are hereby issued under Federal authority. Any notification or report sent to TWC required under Provisions VI.AA through FF and IX of this permit shall also be sent to the Director of the Hazardous Waste Management Division, EPA, Region 6. Provisions VI.A through FF and IX are subject to review and approval by both EPA and TWC.

This permit is based on the assumption that all information contained in the permit application is accurate and that the facility will be constructed and operated as specified in the permit application. The permit application consists of all information regarding this facility submitted November 7, 1985; and as revised by submittal of February 10, 1986, June 22, 1987, and October 5, 1987, to the Texas Water Commission (TWC). The permit may be modified, revoked and reissued, or terminated for cause including any inaccuracies found in the permit application (see 40 C.F.R. §§270.41, 270.42, and 270.43).

Those permit provisions written under the above cited Federal authority shall be effective on June 17, 1988 and shall expire at midnight on March 15, 1998.

Issued this 17 day of June, 1988.

by Jack L. Davis
for Allyn M. Davis, Director
Hazardous Waste Management Division

**FACT SHEET
FOR
ISSUANCE OF RCRA PERMIT**

Name of Facility

Texaco Refining and Marketing, Inc. TXDO08097529

Groundwater Monitoring Requirements Under Interim Status

Texaco currently operates a detection monitoring program for the existing land treatment unit which consists of two upgradient wells and thirteen point of compliance wells. Detection parameters include nickel, lead, chromium, benzene, toluene, and phenol. Sampling of all wells occurs semi-annually, although background values were determined from one year of quarterly sampling.

HSWA Provisions

1. RFI

The permit requires a RCRA facility investigation (RFI) for 34 solid waste management units (SWMU's) identified in the RCRA facility assessment (RFA). The purpose of the workplan is to determine if there have been releases of hazardous constituents to the environment from any of the above referenced SWMU's.

For each SWMU, soil core samples must verify/deny contamination. If the area is contaminated, the extent of contamination must be ascertained, as well as the hazardous constituents involved. Note that the permittee may submit supportive data and certify that no contamination exists in lieu of performing a hydrogeology study (SWMU-by-SWMU). The general requirements of the RFI are listed as HSWA requirements in the permit.

Compliance Schedules

1. RCRA-related

a. The provisions of the permit are effective upon issuance.

b. Land Treatment Units

- Submit certification of proper construction
- Submit certification that all groundwater monitoring wells or well clusters have been properly installed.
- Submit certification that the treatment demonstration has been carried out in accordance with the approved treatment demonstration plan.
- Submit certification upon closure that the facility has been closed in accordance with the requirements of this permit.

2. HSWA - related

See Attachment 1 for HSWA -related compliance schedules.

Comments

1. See attachment 2 for EPA comments on the State-drafted permit as well as a brief review of the State's response.

Attachment 1

HSWA Compliance Schedules

1. RFI

Deadlines

Activity

Timeframe

Date

Submit RFI workplan

60 days

Implement RFI workplan

Upon approval

Submit final RFI report

Within 60 days of Completion



Texaco

RECEIVED
EPA REGION VI

89 DEC -2 AM
HAZARDOUS WASTE

TXD 008097529
RECEIVED
EPA REGION VI

DEC -1 PM 2:08

OFFICE

Regional Administrator
U. S. Environmental Protection Agency
Region VI

Attention: Mr. Robert Layton, Jr.

Re: RCRA Permits

Dear Mr. Layton:

Effective December 31, 1988 Texaco Refining and Marketing Inc. (Texaco) will transfer to STAR Enterprise (STAR), a partnership, certain industrial facilities with hazardous waste facilities having the following federally issued RCRA permits and/or ID numbers:

EPA ID No. TXD 008097529
EPA ID No. TXD 980626022
Permit No. HW-50188

Revised permits forms in the name of STAR Enterprise are enclosed. Please modify these permits under 40 C.F.R. Section 270.40 to reflect this transfer and show the permittee as STAR Enterprise, rather than Texaco Refining and Marketing Inc.

Lastly, it is also requested that Region VI waive the requirement of 40 C.F.R. Section 270.40 that this submission be made no later than 90 days prior to the scheduled change of ownership.*

Sincerely,

STAR Enterprise

M. J. Killien
Manager - Port Arthur (Area) - Acting
P. O. Box 712, Port Arthur, Texas 77641-0712

Enclosures

Wait for
TWC
to
Approve

* It is within the discretion of an administrative agency to relax or modify its procedural rules. American Farm Lines v. Black Ball Freight Service, 397 U.S. 532, 90 S.Ct. 1288, 25 L.Ed. 2d 547 (1970); National Labor Relations Board v. Monsanto Chemical Company, 205 F. 2d 763, 764 (8th Cir. 1953); Neighborhood TV Co., Inc. v. F.C.C., 742 F. 2d 629 (D.C. Cir. 1984). It can even be unlawful for an agency to refuse to waive a procedural rule. Health Systems Agency v. Norman, 589 F. 2d 486 (10th Cir. 1978). The Environmental Protection Agency has, in fact, upon request waived the 90 day prior notice rule for transfer of interim status under RCRA, so there is agency, as well as judicial, precedent for such waivers.



Per No. HW-50188

EPA I.D. No. TXD 008097529

TEXAS WATER COMMISSION
Stephen F. Austin State Office Building
Austin, Texas

PERMIT FOR INDUSTRIAL
SOLID WASTE MANAGEMENT SITE
issued under provisions of TEX.
REV. CIV. STAT. ANN. art. 4477-7

Name of Permittee:

STAR Enterprise
P. O. Box 712
Port Arthur, Texas 77640

Site Owner:

STAR Enterprise
1270 Northborough Drive
Houston, Texas 77067

Registered Agent for Service:

Cydia J. Cuykendall
1270 Northborough Drive
Houston, Texas 77067
Hazardous Waste Processing, Storage, and
Disposal - Non-commercial

Classification of Site:

The permittee is authorized to process, store, and dispose of wastes in accordance with limitations, requirements and other conditions set forth herein. This permit is granted subject to the rules of the Commission and other Orders of the Commission and laws of the State of Texas. Nothing in this permit exempts the permittee from compliance with the applicable rules and regulations of the Texas Air Control Board.

This permit will be valid until cancelled, amended or revoked by the Commission, except that the authorization to process and dispose of wastes shall expire midnight, ten years after the date of permit approval.

All permit provisions in this permit stem from state authority. Those provisions marked with an asterisk (*) stem from both state and federal authority.

APPROVED, ISSUED, AND EFFECTIVE this 15th day of March, 1988

ATTEST.

Karen A. Phillips

Paul H. Jenkins
For the Commission

AUTHORIZATION TO OPERATE UNDER THE
RESOURCE CONSERVATION AND RECOVERY ACT

In compliance with the Resource Conservation and Recovery Act (RCRA), as amended,

STAR Enterprise
P.O. Box 712
Port Arthur, Texas 77640

is authorized to dispose of hazardous waste in accordance with the limitations, requirements and other conditions set forth herein at a facility located in Jefferson, County, Port Arthur, Texas. (North Latitude 29°53'14" West Longitude 93°58'42").

This is a joint permit issued by the Texas Water Commission (TWC) and the Environmental Protection Agency (EPA) and is issued, in part, pursuant to the provisions of Section 206, 212, and 224 of the Hazardous and Solid Waste Amendments of 1984 (HSWA) which modified Sections 3004 and 3005 of the RCRA. The provisions in this permit marked with an asterisk (*) stem from the HSWA and are hereby issued under Federal authority. Any notification or report sent to TWC required under Provisions VI.AA through FF and IX of this permit shall also be sent to the Director of the Hazardous Waste Management Division, EPA, Region 6. Provisions VI.A through FF and IX are subject to review and approval by both EPA and TWC.

This permit is based on the assumption that all information contained in the permit application is accurate and that the facility will be constructed and operated as specified in the permit application. The permit application consists of all information regarding this facility submitted November 7, 1985; and as revised by submittal of February 10, 1986, June 22, 1987, and October 5, 1987, to the Texas Water Commission (TWC). The permit may be modified, revoked and reissued, or terminated for cause including any inaccuracies found in the permit application (see 40 C.F.R. §§270.41, 270.42, and 270.43).

Those permit provisions written under the above cited Federal authority shall be effective on June 17, 1988 and shall expire at midnight on March 15, 1998.

Issued this 17 day of June, 1988.

by Jack L. Davis
for Allyn M. Davis, Director
Hazardous Waste Management Division



TEXAS WATER COMMISSION
Stephen F. Austin State Office Building
Austin, Texas

PERMIT FOR INDUSTRIAL
SOLID WASTE MANAGEMENT SITE
issued under provisions of TEX.
REV. CIV. STAT. ANN. art. 4477-7

Permit No. HW-50188

EPA I.D. No. TXD 008097529

This permit supersedes and
replaces Permit No. HW-50188
approved March 15, 1988.

Name of Permittee: Texaco Refining and Marketing Inc.
P. O. Box 712
Port Arthur, Texas 77640

Site Owner: Texaco Refining and Marketing Inc.
1111 Rusk
Houston, Texas 77002

Registered Agent for Service: J. F. Kinsel
Texaco Refining and Marketing Inc.
1111 Rusk
Houston, Texas 77002

Classification of Site: Hazardous Waste Processing, Storage, and
Disposal - Non-commercial

1988 JUL -7 PM 2:19
RECEIVED

The permittee is authorized to process, store, and dispose of wastes in accordance with limitations, requirements and other conditions set forth herein. This permit is granted subject to the rules of the Commission and other Orders of the Commission and laws of the State of Texas. Nothing in this permit exempts the permittee from compliance with the applicable rules and regulations of the Texas Air Control Board.

This permit will be valid until cancelled, amended or revoked by the Commission, except that the authorization to process and dispose of wastes shall expire midnight, ten years after the date of permit approval.

All permit provisions in this permit stem from state authority. Those provisions marked with an asterisk (*) stem from both state and federal authority.

APPROVED, ISSUED, AND EFFECTIVE this 28th day of June, 1988

ATTEST:

Karen A. Phillips

Paul Hopkins
For the Commission

StarEnterprise

Michael J Killien
Plant Manager



P O Box 712
Port Arthur TX 77641-0712
409 989 7001
FAX 409 989 7774

July 29, 1996

RE: RFI-Interim Corrective Measures Implementation
Solid Waste Registration No. 30121
Hazardous Waste Permit 50188



Z 203 941 895

CERTIFIED MAIL

RETURN RECEIPT REQUESTED

Mr. Paul S. Lewis
Manager - Corrective Action Section
Industrial & Hazardous Waste Division
Texas Natural Resource Conservation Commission
P. O. Box 13087
Austin, TX 78711-3087

Attention: Mr. Ray Risner

Dear Mr. Lewis:

As specified in Section 6.0 of the Interim Corrective Measures Implementation (ICMI) Work Plan, approved by your office on August 13, 1993, we are submitting the twelfth of the quarterly reports on activities in progress under the Work Plan. This report covers activities during the months of April, May, and June, 1996.

Enclosed, please find two copies of the subject report. In accordance with your instructions, we are also sending a copy of the report to the TNRCC Region 10 office in Beaumont, and to the EPA office in Dallas.

At this time, Star would like to request TNRCC approval to change from quarterly reporting to semi-annual reporting. Since the ICMI Work Plan began in 1993, Star has submitted quarterly reports on activities required under the Work Plan. Currently the work underway involves monthly monitoring of several well sites, with vacuum truck removal of free product as needed. The recovery systems in operation at well RMW-19 and along Flare Road are monitored weekly. Star would continue these activities without change.

If you concur, the next report would then be due within 30 days of the quarter ending December 31, 1996. If you have any questions regarding the information in this report, please contact Mr. Jim Raithe at (409)989-7111.

Yours very truly,

STAR ENTERPRISE

SIGNED: M.J. KILLIEN

WFW

jfr

cc: Ms. Lori King, Permits Section, U. S. Environmental Protection Agency, Dallas, TX

Mr. Vic Fair, Region 10 Manager, Texas Natural Resource Conservation Commission, Beaumont,
TX

Enclosures

**TWELFTH QUARTERLY STATUS REPORT
(APRIL TO JUNE 1996)
INTERIM CORRECTIVE MEASURES
IMPLEMENTATION
STAR ENTERPRISE
PORT ARTHUR REFINERY**

JULY 29, 1996

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EXECUTIVE SUMMARY

This twelfth quarterly status report is being submitted to the Texas Natural Resource Conservation Commission (TNRCC) by Star Enterprise (Star) to report on project activities for interim corrective measures under the RCRA Facility Investigation (RFI) process. The efforts described in this report follow the 1993 Interim Corrective Measures Implementation (ICMI) Work Plan. It encompasses areas in the vicinity of Alligator Bayou, which traverses the Port Arthur Refinery and is bordered by several Solid Waste Management Units (SWMUs) and areas of concern. Also included are the SWMUs located east and west of Alligator Bayou. For the purpose of this ICMI program, the areas of investigation and interim recovery have been categorized into those (1) along Alligator Bayou, (2) east of Alligator Bayou, and (3) west of Alligator Bayou. The period of record for this report is April through June 1996.

With respect to the subsurface investigation requirements of the ICMI Work Plan, Star Enterprise completed the 12-month period for checking existing RFI monitoring wells located *along* Alligator Bayou for the presence of light non-aqueous phase liquids (LNAPL) during the third quarter of 1994. These wells, which are screened in the uppermost aquifer, did not reveal the presence of LNAPL. Some wells installed as part of this interim program and screened in the upper fill zone have exhibited LNAPL. The 12-month period of checking monitor wells located at the perimeters of SWMUs *east and west* of Alligator Bayou was completed in October 1994. As previously reported, six of the 68 original RFI wells screened in the uppermost aquifer located outside of the Alligator Bayou area were determined to contain LNAPL in varying amounts. The LNAPL-bearing wells are RMW-19, RMW-19R, RMW-91, RMW-91R, RMW-29, and RMW-113, all located west of Alligator Bayou, and were discussed in previous quarterly reports. Of the ten monitor wells installed in the upper fill stratum east of Alligator Bayou under the subsurface investigation program, two wells were determined to contain significant amounts of LNAPL and three wells have exhibited less than one inch of LNAPL. The LNAPL detected in these wells have also been discussed in previous quarterly reports.

With respect to interim recovery measures applied to the uppermost aquifer in this reporting period, Star Enterprise continued to operate the LNAPL recovery system for monitor well RMW-19. The pumping frequency in the RMW-19 system has been consistent during the twelfth quarter at six 5-minute cycles per day at a pumping rate of approximately 1.0 gallon per minute. A total of 1005 gallons of LNAPL/water was removed from RMW-19 during this reporting period. The cumulative total fluids removed since installation in August 1994 is 4,745 gallons, of which approximately 798 gallons is LNAPL.

Star continues to maintain passive LNAPL recovery systems in RMW-29 and RMW-113 using the absorbent sock method. Measurements indicate that the LNAPL thickness in both of these monitor wells has been reduced to a sheen through use of the absorbent socks.

With respect to the upper fill zone east of Alligator Bayou, the LNAPL recovery pumps installed in monitor wells SC-4 and SC-8 continue to operate. The recovery tank at SC-4 was emptied once during this reporting period. A total of 300 gallons of liquid was removed, of which 100 gallons was LNAPL. For this well the cumulative removal is 1605 gallons of liquid, of which 1005 gallons is LNAPL. During this reporting period well SC-8 produced 90 gallons of LNAPL. The cumulative removal is 660 gallons, all of which is product. The absorbent socks continue to be maintained in monitor wells SC-1, SC-5, and SC-6. Star continues to remove LNAPL from the four recovery wells in the vicinity of Alligator Bayou using a vacuum truck. In all of these systems, the recovered material is returned to the refinery process.

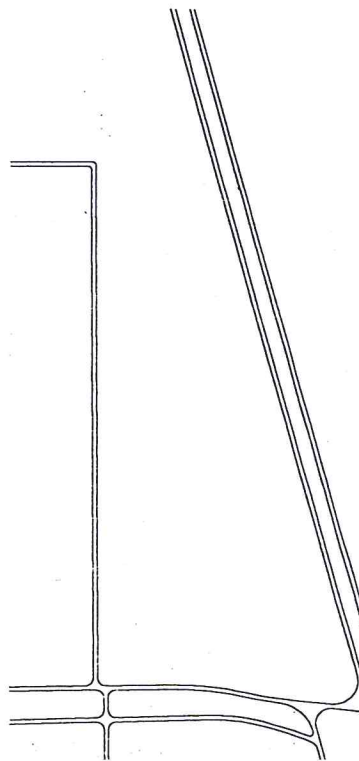
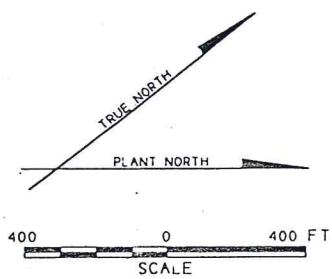
Section 1 INTRODUCTION

As part of the RCRA Facility Investigation (RFI) process, the Star Enterprise Port Arthur Refinery is conducting interim corrective measures to investigate and remediate findings of light non-aqueous phase liquids (LNAPL) in the surface water and subsurface media in the vicinity of solid waste management units (SWMUs).

An Interim Corrective Measures Implementation (ICMI) Work Plan was submitted by Star Enterprise and subsequently approved with modifications by the TNRCC. The ICMI Work Plan addresses all SWMU areas east (eighteen in number) and west (twelve) of Alligator Bayou as well as the bayou itself, which borders a number of the units. Alligator Bayou flows in a north to south direction through the refinery and conveys City of Port Arthur stormwater drainage as well as clean stormwater run-off and treated effluent wastewater from the refinery.

The areas subject to this investigative and associated interim recovery programs are depicted in the accompanying Figure 1-1. This figure also identifies the monitoring wells previously installed as part of the RFI program.

This twelfth quarterly progress report summarizes activities completed during the months of April through June 1996. Requirements for quarterly reporting are outlined in Section 6.0 of the approved ICMI Work Plan. This quarterly report is organized into sections addressing surface water investigation activities, subsurface activities, and interim recovery system activities completed during the quarter. Also included is an overview of planned activities for the next reporting period. Star Enterprise is requesting that the frequency of ICMI reporting be reduced to semi-annual. If approved, the next reporting period will cover the months of July through December 1996.



LEGEND

o MW-62 WELL OR BORING PRE-EXISTING THE RF.

- ◇ RMW-16 PILOT RECOVERY WELL
 ⊙ RMW 77 WELL PLUGGED AND ABANDONED
 P&A
 ⊙ RMW-48 WELL NOT FOUND (NF) OR DAMAGED (D)
 NF SUCH THAT WELL IS UNAVAILABLE
 ——— SHEET PILING
 SWMU BOUNDARY
 (Hatched Circle) ENCOUNTERED LNAPL DURING
 1993 SURVEYS

NW SITE AREA IDENTIFIER

WELL SELECTION CRITERIA FROM CM. WP (AS MODIFIED)

- A) WELL WITH FREE PRODUCT REPORTED
 DURING RFI SAMPLING EVENTS, OR
 B) WELL WITH LOGGED ODOR, STAIN, OR
 FREE PRODUCT/WASTE IN THE
 UPPERMOST AQUIFER; OR
 C) WELL WITH BTEX OR PHENOLICS
 REPORTED IN JUNE 1990 LABORATORY
 ANALYTICAL RESULTS
 ▨ WELL WITH LOGGED FREE PRODUCT/
 WASTE IN THE FILL/CLAY ZONE THAT
 WERE NOT ALREADY IDENTIFIED BY
 A), B), OR C) ABOVE.
 □ AREAL COVERAGE

File: STARQ3F1.GCD Job No:125308.6 Plotted: 08/04/95

FIGURE 1-1
 PLOT PLAN OF SWMUs AND GWM WELLS

STAR ENTERPRISE
 PORT ARTHUR REFINERY



JONES & NEUSE

GULF COAST REGION OF **ENVIRONMENTAL**

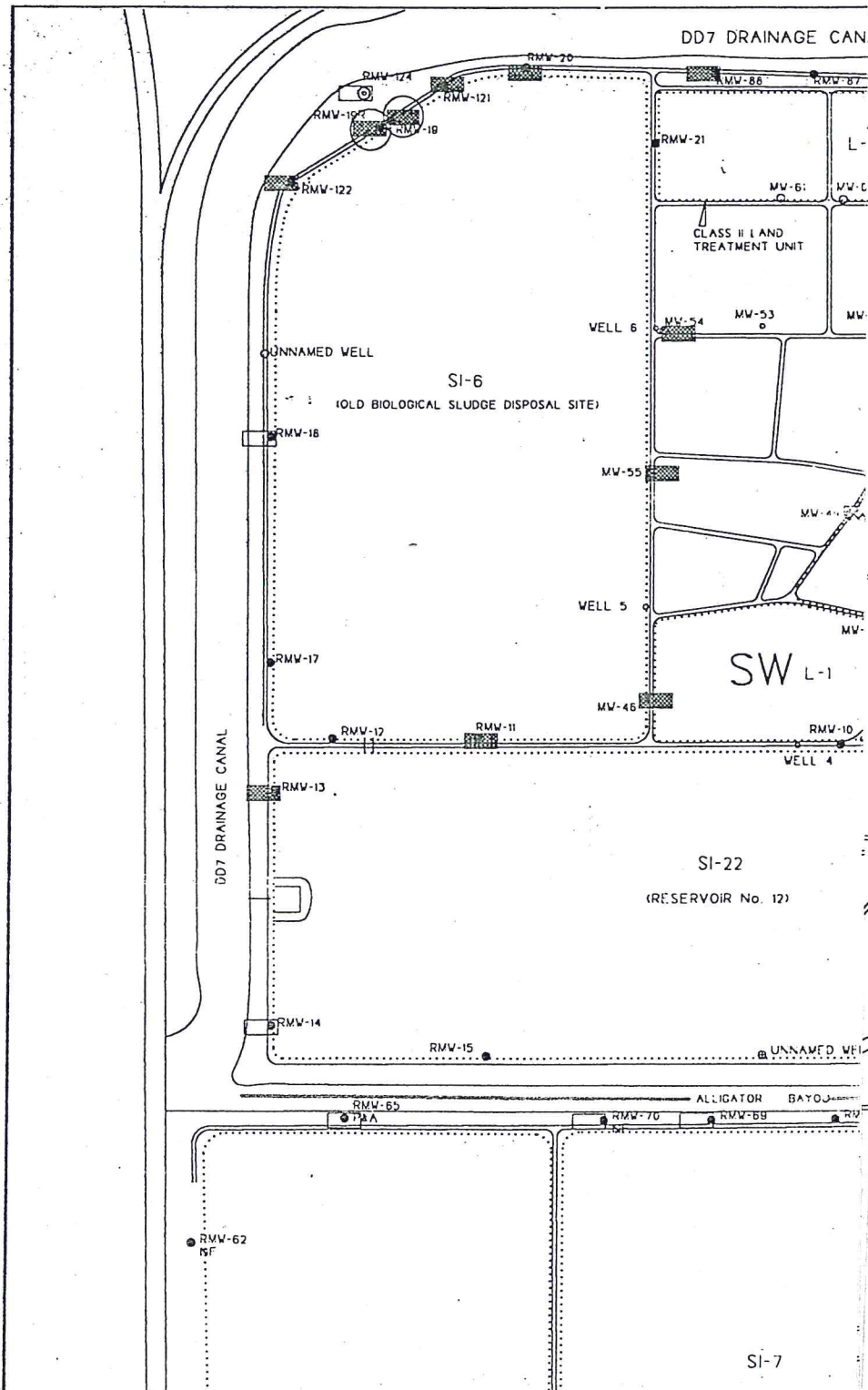
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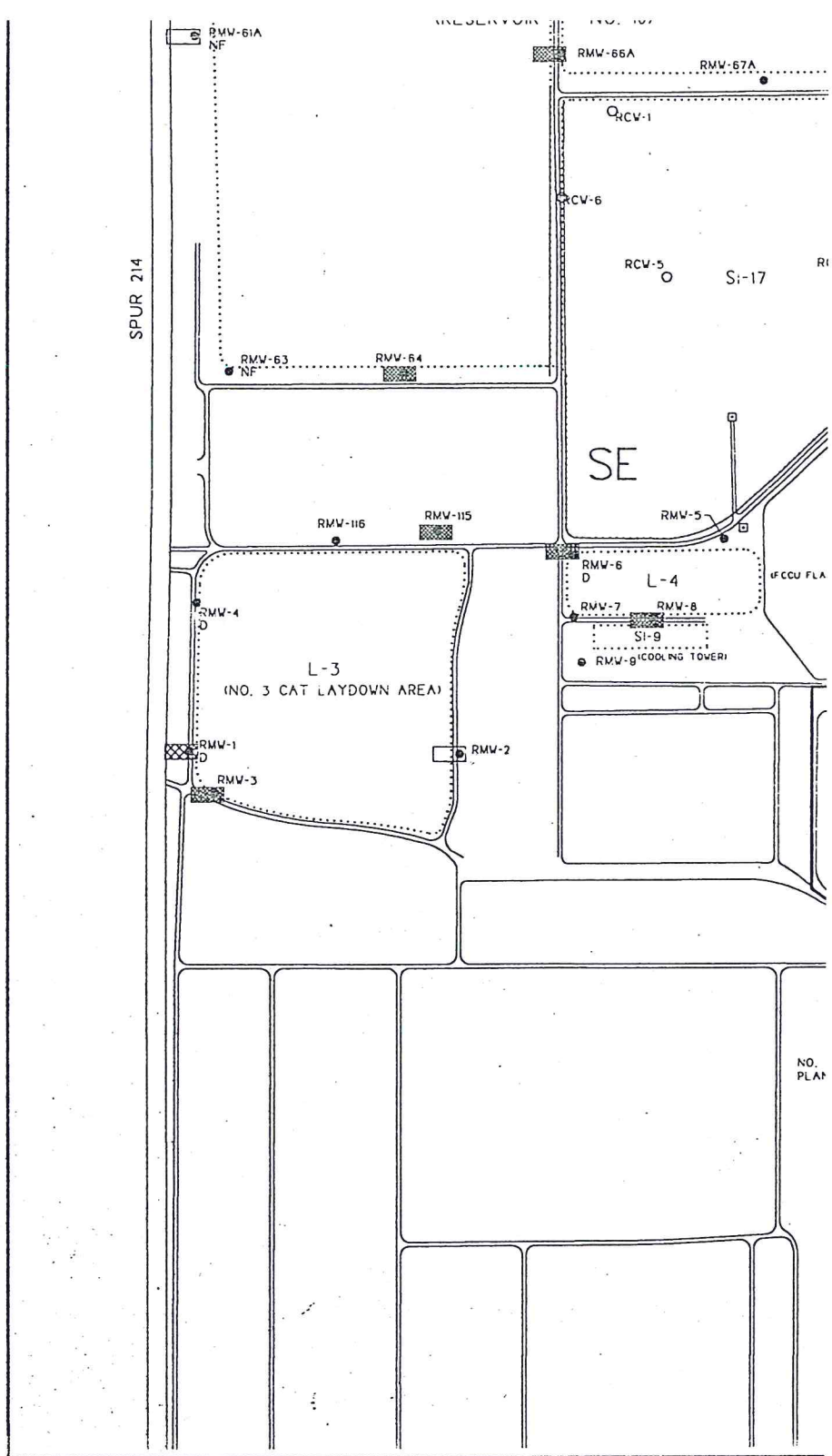
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 196. $\frac{1}{197}</$

RMV-52

RMV-58

SI-14

(RESERVOIR)

NO. 14)

RMV-56
NF

NW

SAVANNAH AVENUE

RMW-49
NF
J-60R

BMW-57
NF...

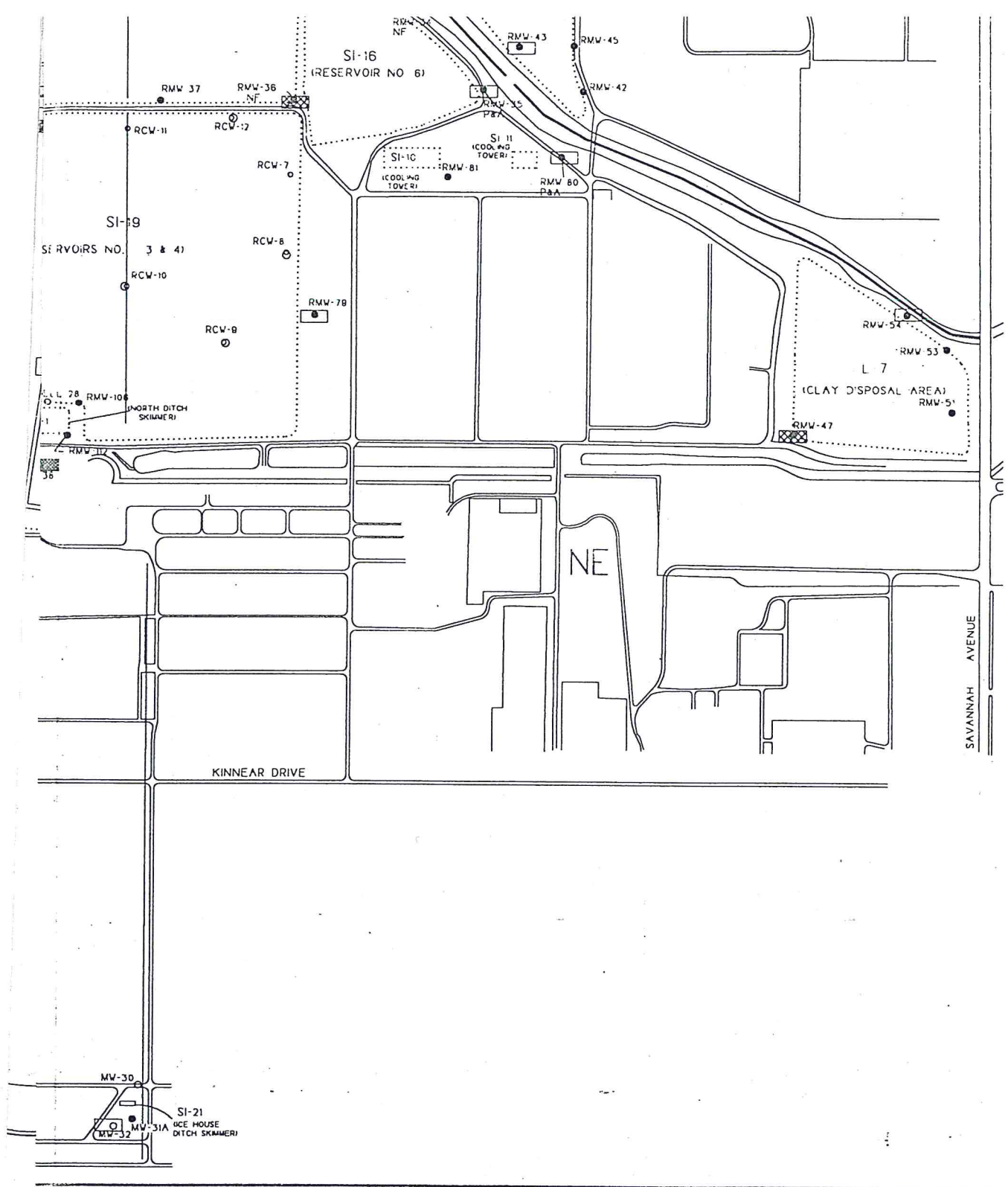
RMW
NF

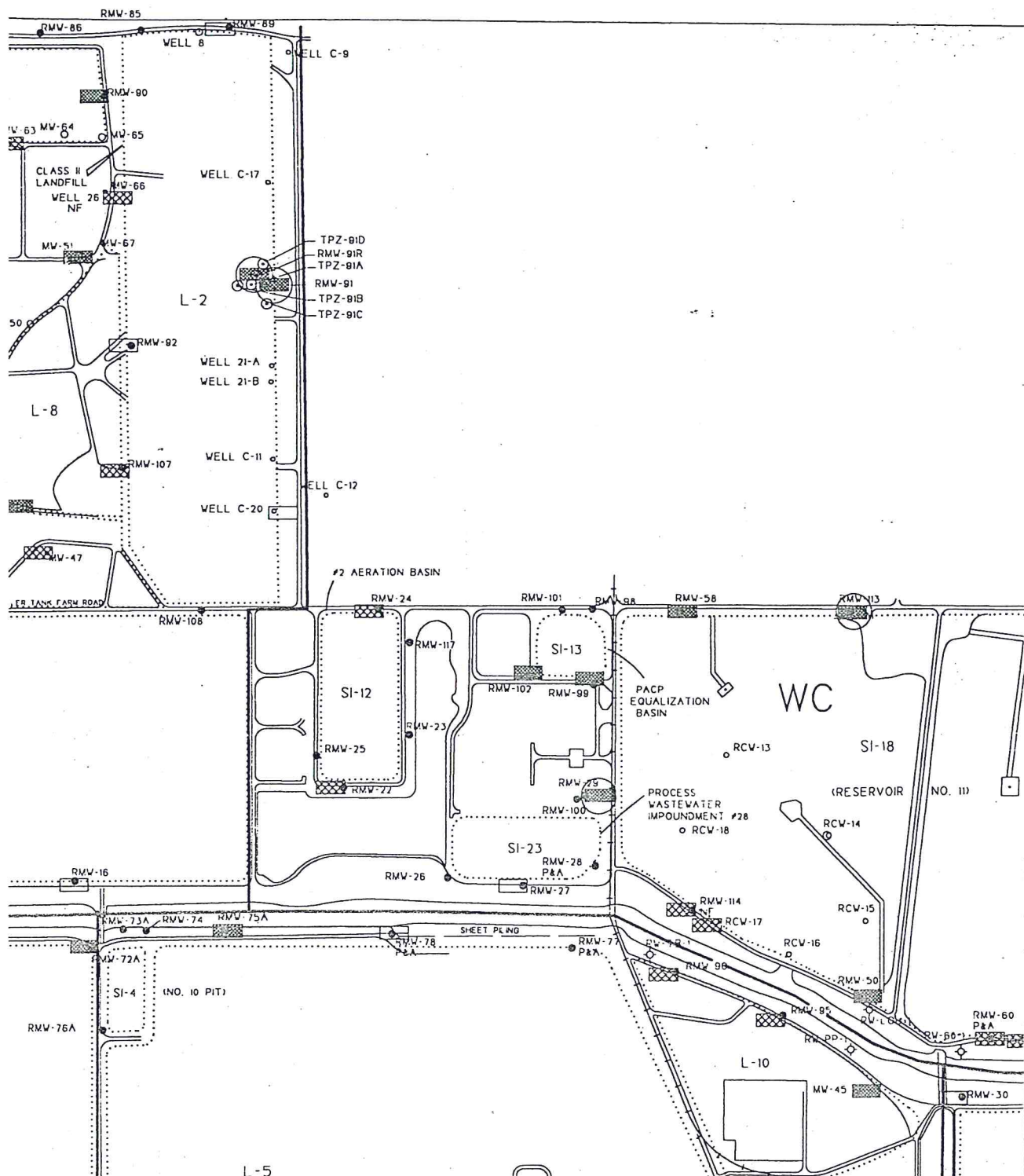
RMW-103

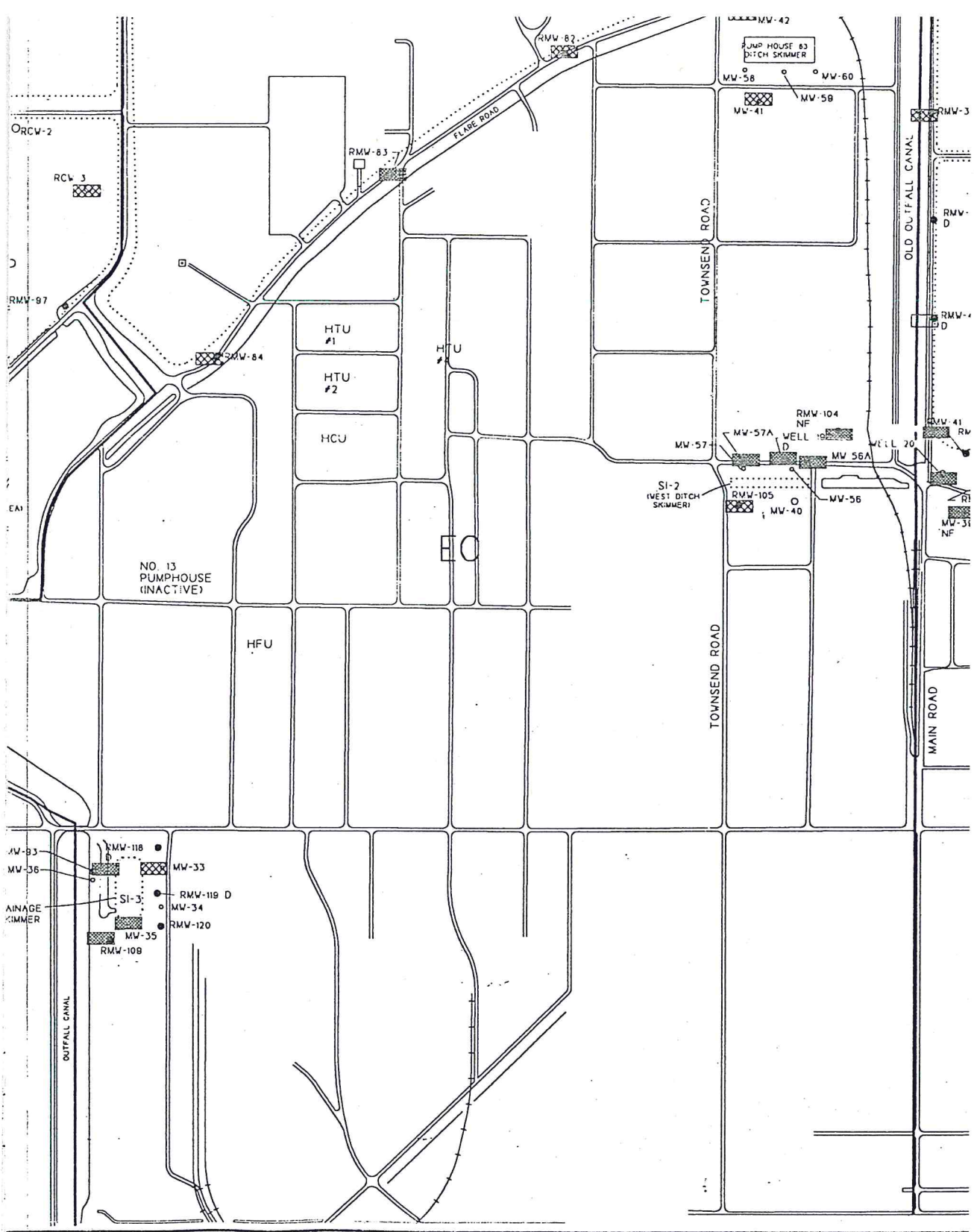
RMV-31

RM.W-32
NF

ALLIGAT







Section 2

SURFACE WATER AND SOILS INVESTIGATION

2.1 Receiving Water Inspections

The surface water surveys in Alligator Bayou were completed in the first quarter of 1994 to satisfy the requirements of this portion of the ICMI Work Plan. No further surface water surveys are planned at this time.

A similar set of six biweekly boat surveys was completed later in 1994 for the DD7 Canal, from Savannah Avenue southward to the confluence with Alligator Bayou. This set of bi-weekly surveys also satisfies the requirements of the ICMI Work Plan.

These results of these surveys were given in previous status reports.

2.2 SWMU Inspections

Inspection findings of the twelve RFI units west of Alligator Bayou were also reported in previous quarterly status reports. The ground surveys were conducted to identify and document any areas of hydrocarbon seepage either on the surface of a closed unit or at the perimeter of a unit which may indicate active release points.

In summary, eight of the twelve SWMUs located west of Alligator Bayou indicated no surface staining or hydrocarbon seeps. The remaining four units had some indications of petroleum residual on the surface of the ground within or adjacent to the unit: L-2 Former Landfill (on the Huntsman Chemical Plant side north of the unit); SI-6 Old Biological Sludge Pond (on the north side of the unit at two locations 75 to 100 feet in length); SI-18 or Reservoir No. 11 (on the northern portion of the eastern berm); and L-6 Pipe Laydown Area (southwestern portion with asphalt-like material on the ground surface). With the exception of the L-2 unit, all of these expressions of hydrocarbon are within the boundaries of the SWMUs. Photographs were included within previous quarterly reports.

Inspection of the eighteen RFI units located east of Alligator Bayou identified by the ICMI Work Plan have also been completed, and the results were reported in previous quarterly status reports. In summary, two seeps were identified along the eastern boundary of Unit L-5 (Spent Clay Fill Area). The first seep is located on the eastern edge of Flare Road south of monitoring well RMW-83 and the second seep was identified along the eastern edge of Flare Road south of monitoring well RMW-82. Photographs of the seeps were included in the third quarterly status report. In accordance with the ICMI Work Plan, a subsurface investigation was initiated in the first quarter of 1994 to evaluate the seep areas near Unit L-5. The results of the investigation have been reported, and this work has resulted in the installation of systems for active recovery of subsurface LNAPL in the vicinity of L-5.

Section 3

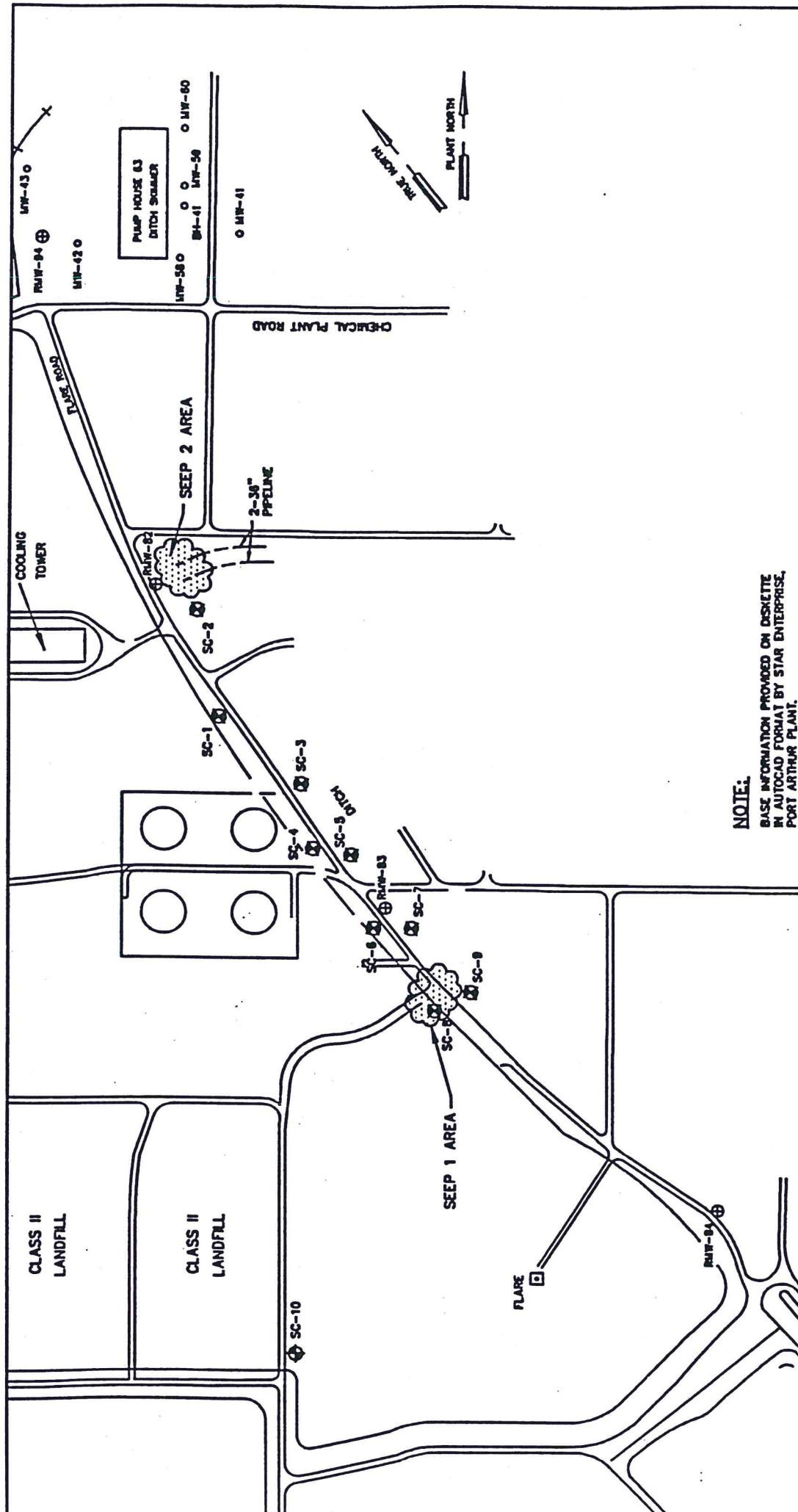
SUBSURFACE INVESTIGATION ACTIVITIES

In October 1994, Star completed the 12 monthly fluid determinations for the existing RFI wells located west and east of Alligator Bayou. The 12-month monitoring requirements for the wells located in the areas immediately adjacent to Alligator Bayou were completed in August 1994.

None of the original RFI wells located east of Alligator Bayou during the 12 events had an indication of free product. The wells are apparently screened in the uppermost aquifer (first water bearing sand unit) beneath the facility. The absence of LNAPL in the saturated zone for these areas of the plant suggests that hydrocarbon has not migrated vertically beyond the natural clay layer typically encountered from the ten to thirty foot interval.

Ten shallow monitor wells were installed in the upper clay in April 1994 to evaluate LNAPL seeps on the east side of Unit L-5. The location of the wells are presented in Figure 3-1. The findings of the ten wells were discussed in previous quarterly reports. Active recovery efforts were implemented in Monitor wells SC-4 and SC-8 and are discussed in the next section. The other eight wells have not produced recoverable amounts of LNAPL. Absorbent socks, installed as needed in a couple of these wells, collect minor amounts of LNAPL that appears on a sporadic basis.

Of the 46 wells checked in the area west of the bayou, six were once again determined to contain LNAPL. The six wells are identified as RMW-19, RMW-19R, RMW-91, RMW-91R, RMW-113, and RMW-29. The findings of the six wells were discussed in previous quarterly reports. Active recovery efforts continue in the areas of RMW-19, RMW-29, and RMW-113. Recovery efforts are discussed in the next section.



NOTE:

BASE INFORMATION PROVIDED ON DISKETTE
IN AUTOCAD FORMAT BY STAR ENTERPRISE,
PORT ARTHUR PLANT.

LEGEND



IDENTIFIED SEEP AREA

RW-83 RW MONITORING WELL LOCATION

SC-10 SC MONITORING WELL LOCATION

MW-41 MW MONITORING WELL LOCATIONS

APPROXIMATE SCALE
FEET



1" = 200'

FIGURE 3-1

STAR ENTERPRISE
PORT ARTHUR PLANT
UNAPL EXTENT ASSESSMENT

LOCATIONS OF
PERMANENT MONITORING WELLS

JEFFERSON COUNTY

C-K ASSOCIATES, INC.
BATON ROUGE, LOUISIANA

DATE	BY	REVISION	DRAWN	CHECKED	DATE	APPROVED	SEW
			BOB/ACB	TAM			
					MARCH 8, 1994		

Section 4

INTERIM HYDROCARBON RECOVERY SYSTEMS

4.1 Alligator Bayou Area

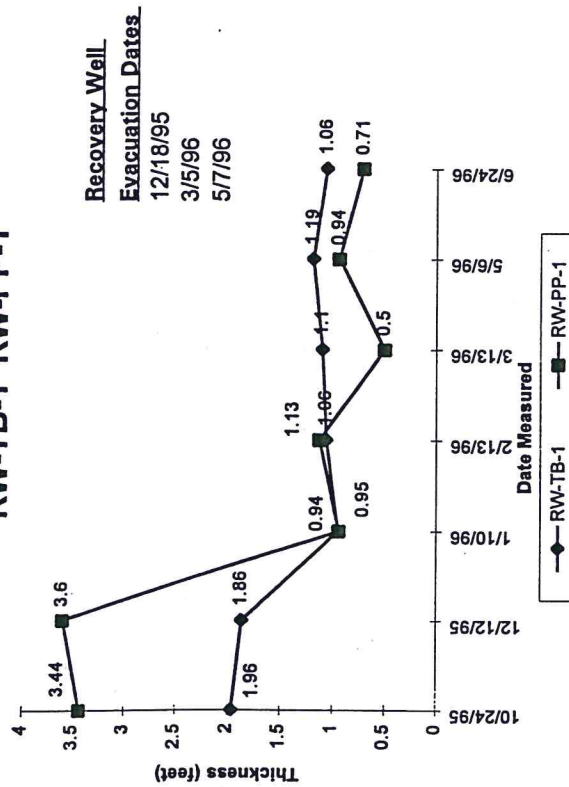
Four pilot recovery wells were installed in the vicinity of Alligator Bayou in 1994. The locations of these wells are presented on Figure 1-1 (RW-TB-1, RW-PP-1, RW-LOU-1, and RW-60-1). These wells are screened in the "upper fill" zone, since product contamination is limited to the first stratigraphic unit beneath the surface and not deeper. Star continues its periodic well evacuation program using a vacuum truck, and the recovered fluid is disposed in the refinery's recovered oil system. Figure 4-1 presents product thickness measurements for the four recovery wells. The graphs illustrate that the vacuum truck method has been relatively effective in reducing the thickness of LNAPL in the immediate vicinity of each well. These findings suggest that the soil matrix surrounding each casing is becoming slower to release LNAPL to the screened interval for collection.

4.2 RMW-19 Recovery System

Star Enterprise installed a "stand alone" product recovery system for monitor well RMW-19 in August 1994. Monitor well RMW-19 contained up to 13 feet of LNAPL prior to implementing corrective action. The recovery system consists of a pneumatically driven top filling positive displacement pump operated by portable nitrogen cylinders. The recovery pump is set at the product/water interface and the recovered fluids are pumped into a 500 gallon aboveground fluid collection tank which is equipped with an overflow detection device. Details for the recovery system were presented in the fifth quarterly report.

As of June 30, 1996, approximately 4,745 gallons of fluid have been removed from RMW-19. Figure 4-2 presents the cumulative volume of liquids recovered from RMW-19 since August 12, 1994. The recovered fluids continue to contain a LNAPL phase, an emulsion

Recovery Well Product Thickness RW-TB-1 RW-PP-1



Recovery Well Product Thickness RW-LOU-1 RW-60-1

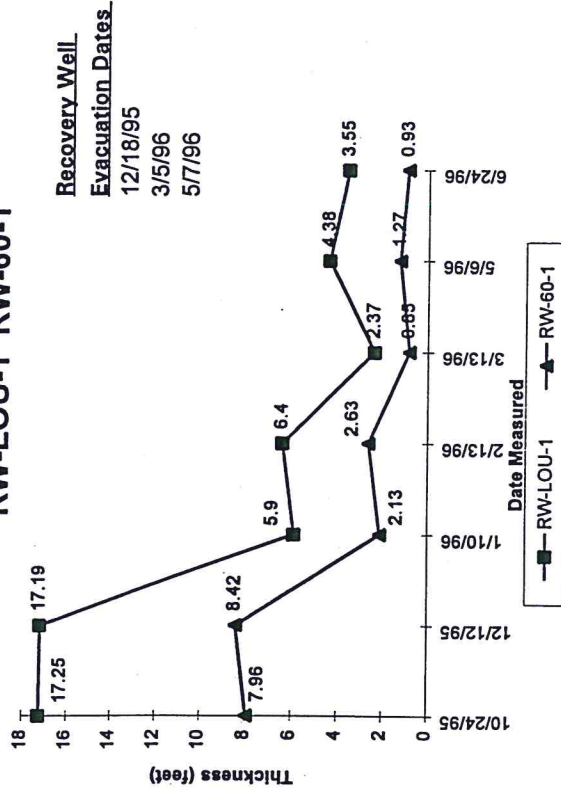


FIGURE 4-1
RECOVERY WELL
PRODUCT THICKNESS

VOLUME OF LIQUID PUMPED FROM RMW-19

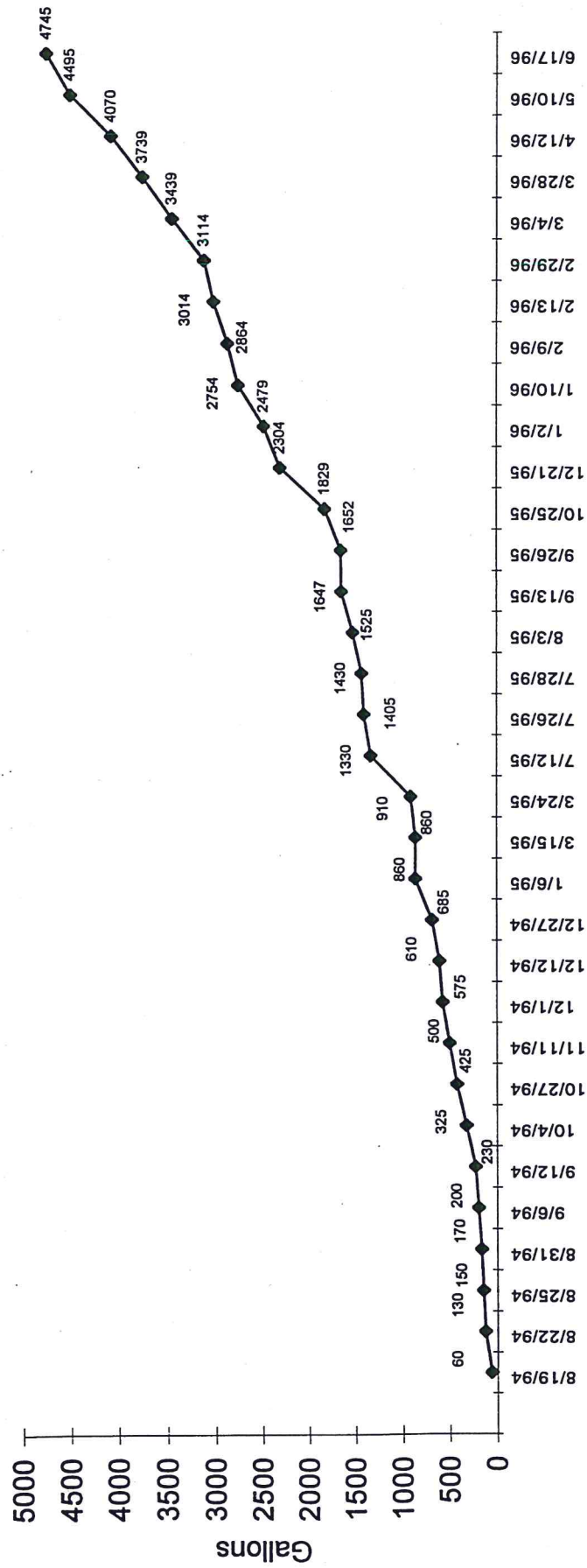


FIGURE 4-2
VOLUME OF LIQUID PUMPED
FROM RMW-19

StarEnterprise



Port Arthur Plant

phase, and water. In the last quarter only about 5 to 10 percent (50 gallons) of the fluids recovered were the emulsion phase and/or LNAPL phase as an oil.

This brings the total volume to approximately 798 gallons of LNAPL product recovered to date from RMW-19. Figure 4-3 presents a graph of product thickness measurements collected from RMW-19. As shown on the graph, after the initial drop in product thickness, the measurements have stabilized to around 8 feet during most of 1995. The increased pumping frequency during the first part of 1996 appears to have reduced the LNAPL thickness to below 7 feet.

Monitor well RMW-19R was installed in March 1993 and is located approximately five feet south of RMW-19 (Figure 1-1). A hydrograph of water level elevations and the LNAPL elevations is presented as Figure 4-4. The historical hydrograph data indicate that the minimal cone of influence created by RMW-19 is not affecting the potentiometric surface of RMW-19R, even at the higher frequency of pumping. The increased pumping cycle had the effect of increasing the amount of water removed concurrently with oil. It was observed that the increased pump rates decreased the efficiency of LNAPL removal. In this twelfth quarter, the pump rate remained consistent at six cycles per day (five minutes per cycle) to adequately control movement of the LNAPL plume and optimize LNAPL removal.

4.3 RMW-113 Recovery System

In July 1995, the passive recovery canister was removed from RMW-113 after being in service for one year. Since installation, the canister recovery system recovered approximately two gallons of LNAPL from RMW-113. As previously reported, the LNAPL thickness in RMW-113 was decreased to 0.12 feet and since March 1995 has not shown significant recovery of LNAPL. Based on the data collected from the recovery canister during 1995, it appears that RMW-113 may not yield recoverable volumes of LNAPL to warrant a stand alone pumping system. Therefore, due to the decreasing LNAPL thickness and the slow observed recovery, absorbent socks were installed in RMW-113 after removing the canister system. The absorbent socks were constructed out of sheets of

LNAPL THICKNESS - RMW-19

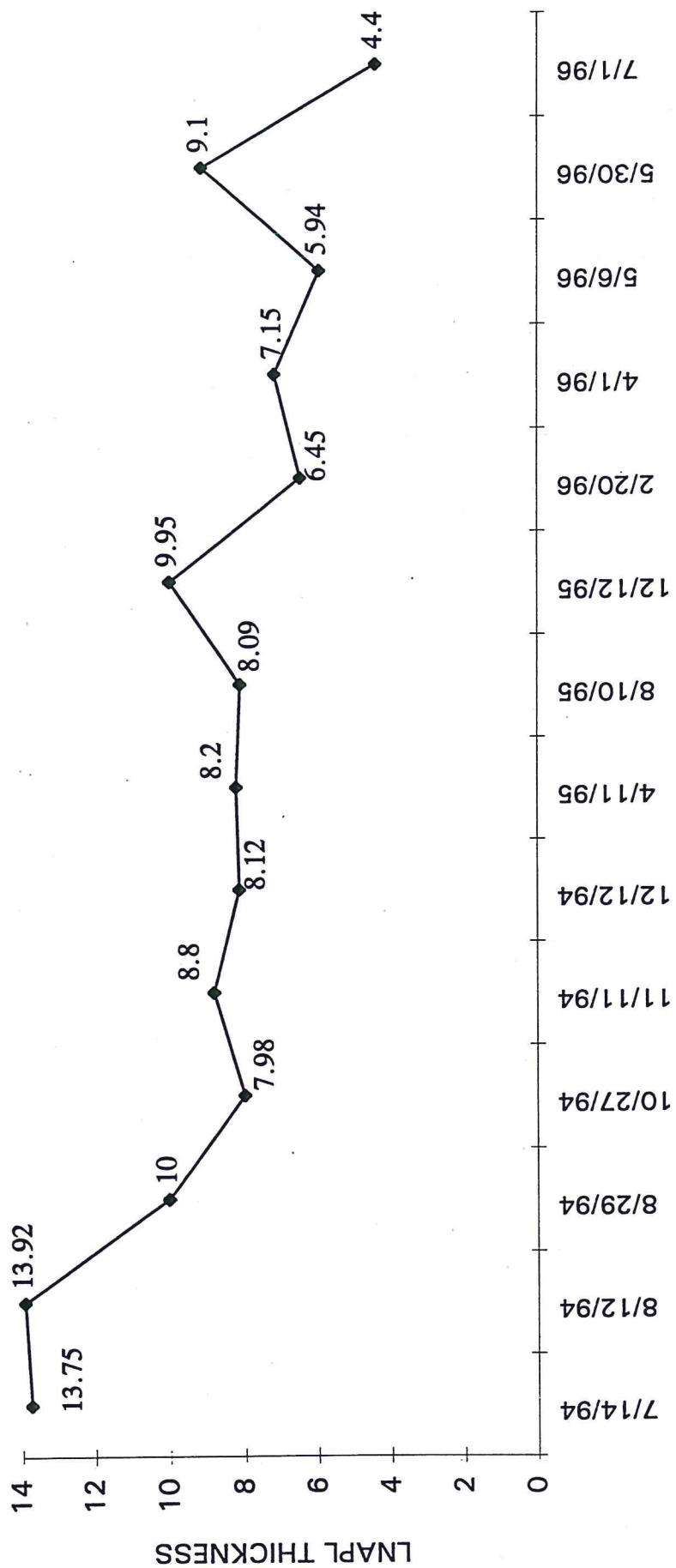


FIGURE 4-3
LNAPL THICKNESS RMW-19

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Port Arthur Plant

Water/LNAPL Elevations (MSL) LNAPL Thickness (feet)

Hydrograph of RMW-19R

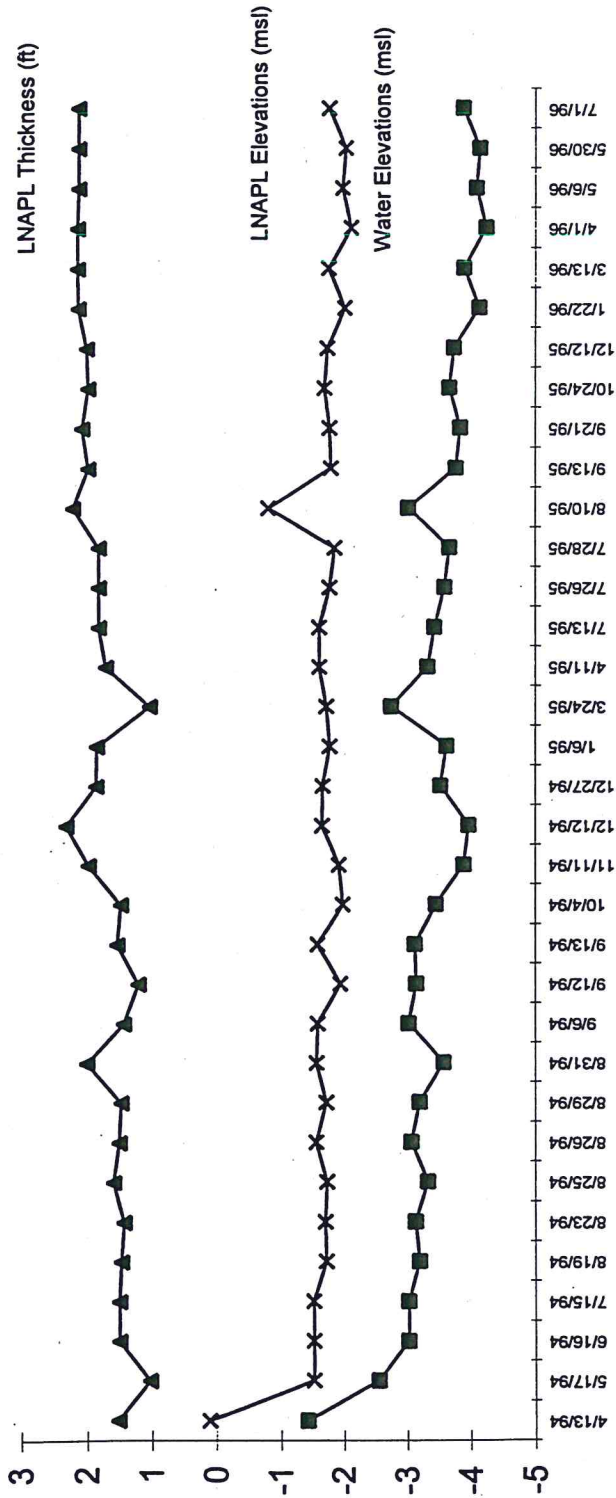


FIGURE 4-4
HYDROGRAPH OF RMW-19

material that were cut, rolled and hung in the well at the product/water interface. The absorbent capacities supplied by the manufacturer for each sheet prior to rolling is 0.76 gallons. During the twelfth quarter, one sock was completely saturated with LNAPL and was subsequently replaced. Based on a more conservative absorbent capacity of the socks, it is estimated that approximately 0.5 gallons of LNAPL was removed during the twelfth quarter. This removal rate is consistent with the removal rate reported in previous quarters.

To evaluate the effectiveness of the passive recovery system, the absorbent sock within monitor well RMW-113 was removed and the well allowed to equilibrate for a minimum of three (3) days. Product thickness measurements taken on May 30, 1996 indicate that MW-113 contains approximately 0.04 feet of LNAPL.

4.4 RMW-29 Area

The LNAPL recovery canister was decontaminated and installed in well RMW-29 as an interim corrective measure on July 12, 1995. Consistent with the findings of RMW-113, the efficiency of the canister decreased after the initial removal of the LNAPL. Therefore, Star installed an absorbent sock as a passive recovery method on December 8, 1995. As with RMW-113, absorbent sheeting was cut, rolled, and hung in the well at the product/water interface. One sock was completely saturated during the twelfth quarter and was subsequently replaced.

The absorbent sock within monitor well RMW-29 was removed and the well allowed to equilibrate for a minimum of 3 days. Product thickness measurements taken during this reporting period indicate that monitor well RMW-29 contains only a trace of LNAPL.

4.5 Unit L-5 Area

Passive recovery in the form of sorbent socks were initially installed in wells SC-1, SC-2, SC-3, and SC-6 and were designed to continually absorb LNAPL products within the well. Passive recovery was completed in SC-2 and SC-3 which contained trace amounts of

LNAPL or a hydrocarbon sheen. For the first time, detection of a minor oil sheen was exhibited in SC-5, and an absorbent sock was subsequently installed.

Two product recovery systems were installed in January 1995 in monitor wells SC-4 and SC-8. A schematic diagram of the product recovery system was presented in the eighth quarterly status report. The two systems consist of top filling pneumatic product skimmer pumps, a temporary holding tank with overfill protection, and dedicated pump control box. Each of the pumps was installed above the product/water interface to allow the product to gravity fill into the pump which then discharges into the holding tank.

During this quarter the recovery system in SC-4, completed in the upper fill, generated approximately 70% water and 30% LNAPL. Historically, this well generated approximately 90% to 100% LNAPL. As a result of this continued drop in efficiency the system was temporarily shut down in early June and allowed to come to equilibrium. Average LNAPL thickness measured on June 26, 1996 was 0.79 feet. The pump elevation was reset and recovery resumed. The volume of LNAPL recovered for this reporting period is estimated to be 100 gallons, bringing the total for this recovery system to 1005 gallons since installation.

The recovery system in SC-8 continues to recover almost 100% LNAPL at a lower rate. Approximately 90 gallons of LNAPL were recovered during this quarter, bringing the total for this system to 660 gallons since installation.

4.6 Alternative Systems

Star Enterprise is re-evaluating the benefit of installing recovery trenches in the areas immediately east and west of Alligator Bayou, since the pilot recovery wells have recently shown diminished levels of recovered hydrocarbon. This observation suggests that the soil matrix is slow to release entrained LNAPL. In addition, a vertical barrier in the form of, sheet piling has been installed at one of the Townsend Bridge piles to capture any surface expression of LNAPL at this location.

Section 5 PLANNED ACTIVITIES

All ground surface and surface water surveys required by the approved ICMI Work Plan have been completed at this time. Follow-up activities to these findings include determining the aerial and vertical extent of free product for any areas of gross contamination outside the SWMU limits.

Star Enterprise will continue to operate and evaluate the product recovery systems for monitor wells RMW-19, RMW-29, and RMW-113 located west of Alligator Bayou. The pump rates, depth to water in RMW-19R, and the ratio of LNAPL to water recovered from RMW-19 will be monitored to optimize the recovery of LNAPL. The passive recovery of LNAPL in RMW-29 and RMW-113 using absorbent socks will continue. Optimization of the two LNAPL recovery systems east of Alligator Bayou in monitor wells SC-4 and SC-8 will continue, as will the monthly vacuum truck removal of accumulations of LNAPL in the four recovery wells along Alligator Bayou (RW-TB-1, RW-PP-1, RW-LOU-1, and RW-60-1).